

GA-K8A480M-9

AMD Socket 939 Processor Motherboard

User's Manual

Rev. 1002

12ME-K8A480M9-1002



This product must not be disposed of with your other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment !

Declaration of Conformity

(for access)

We, Manufacturer/Importer

G.B.T. Technology, Inc., 17358 Railroad Street

Ausschleiger Weg 41, 4F 20327 Hamburg, Germany

(description of the apparatus, system, installation to which it refers)
declare that the product

Motherboard

GA-K8A480M-9

is in conformity with conformity is declared)
in accordance with 90/338 EEC EMC Directive

☐ EN 55011 Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment
☒ EN 61000-3-2 Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"

☐ EN 55013 Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, equipment and associated equipment
☒ EN 55024 Information Technology equipment immunity requirements

☐ EN 55014-1 Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus
☐ EN 50082-1 Generic immunity standard Part 1: Residential, commercial and light industry
☐ EN 50082-2 Generic immunity standard Part 2: Industrial environment

☐ EN 55015 Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires
☐ EN 55020 Immunity from radio interference of household appliances and associated equipment
☐ EN 50091-2 EMC requirements for uninterruptible power systems (UPS)

☒ EN 55022 Limits and methods of measurement of radio disturbance characteristics of information technology equipment
☐ DIN VDE 0855 Cabled distribution systems: Equipment for use in premises with high-voltage sound and television signals
☐ Part 12

☒ CE marking (EC conformity marking)



The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 7323 EEC

☐ EN 60085 Safety requirements for mains operated household and similar general use
Safety requirements for information technology equipment including electrical business equipment

☐ EN 60335 Safety of household and similar electrical appliances
☐ EN 50091-1 General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

Signature: Jimmy Huang

(Stamp)

Date: Mar. 16, 2005

Name: Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2, 1077(a)



Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Motherboard

Model Number: GA-K8A480M-9

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109

(a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Mar. 16, 2005

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Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- For quick installation, please refer to the "Hardware Installation Guide" included with the product.
- For detailed product information and specifications, please carefully read the "Product User Manual".
- For detailed information related to Gigabyte's unique features, please go to the "Technology Guide" section on Gigabyte's website to read or download the information you need.

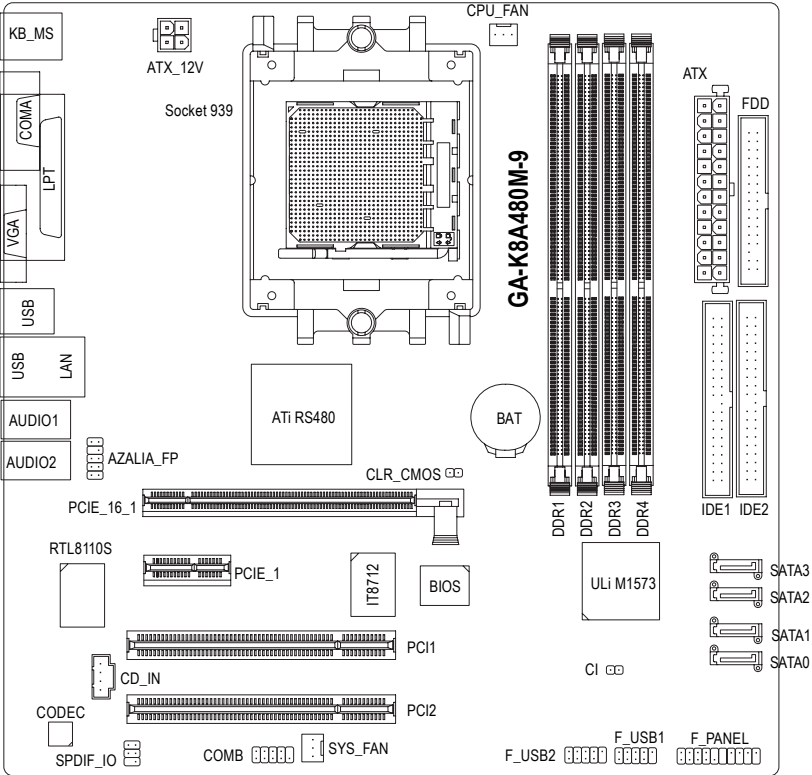
For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

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GA-K8A480M-9 Motherboard Layout



The diagram illustrates the system architecture with the following components and connections:

- AMD K8 Socket 939 CPU:** Connected to **DDR 400/333/266/200MHz DIMM** (Dual Channel Memory) via **CPUCLK+/- (200MHz)** and **Host Interface**.
- ATI RS480:** Connected to the CPU via **Host Interface**. It interfaces with **PCI Express x16** and **PCI Express x1 Bus**. It also receives **SBLINK_CLK P/N (100MHz)**, **NBSRC_CLK P/N (100MHz)**, **NB_OSC (14.318MHz)**, and **66MHz** signals. It connects to a **Local Frame Buffer (L.F.B.)**.
- Uli M1573:** Connected to the ATI RS480 via **PCI Express x1 Bus**. It interfaces with **BIOS**, **4 Serial ATA**, **ATA33/66/100/133 IDE Channels**, **8 USB Ports**, and **PS/2 KB/Mouse**. It also receives **SBSRC_CLK P/N (100MHz)**, **33MHz**, **14.318MHz**, and **48MHz** signals.
- IT 8712:** Connected to the Uli M1573. It interfaces with **Floppy**, **LPT Port**, **COM Ports**, and **PS/2 KB/Mouse**. It receives **48MHz** and **33MHz** signals.
- PCI Bus:** Connects the **ATI RS480** to the **Uli M1573** and the **RTL 8110S** (RJ45).
- Other Components:**
 - PCI-ECLK (100MHz):** Connected to the **PCI Express x1 Port**.
 - PCI-ECLK (100MHz):** Connected to the **PCI Express x16** port.
 - PCI-ECLK (33MHz):** Connected to the **2 PCI** ports.
 - CODEC:** Connected to the Uli M1573 and handles **Surround Speaker Out**, **Center/Subwoofer Speaker Out**, **Side Speaker Out**, **MIC**, **Line-Out**, **Line-In**, **SPDIF In**, and **SPDIF Out**.
 - RTL 8110S:** Connected to the **PCI Bus** and the **RJ45** port.

[illegible]

Chapter 1 Hardware Installation

1-1 Considerations Prior to Installation

Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that the power supply is switched off before unplugging the power supply connector from the motherboard.

Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

Instances of Non-Warranty

1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.

1-2 Feature Summary

CPU	<ul style="list-style-type: none"> ♦ Socket 939 for AMD Athlon™ 64 / 64 FX processor (K8) ♦ 2000MT/s system bus ♦ Supports core frequencies in excess of 3000+ and faster
Chipset	<ul style="list-style-type: none"> ♦ North Bridge: ATi RS480 ♦ South Bridge: ULi M1573 ♦ supported on the Win 2000/XP operating systems
Memory	<ul style="list-style-type: none"> ♦ 4 DDR DIMM memory slots (supports up to 4GB memory) ^(Note 1) ♦ Supports dual channel DDR 400/333/266/200 DIMM
Slots	<ul style="list-style-type: none"> ♦ 1 PCI Express x 16 slot ♦ 1 PCI Express x 1 slot ♦ 2 PCI slots
IDE Connections	<ul style="list-style-type: none"> ♦ 2 IDE connection (UDMA 33/ATA 66/ATA 100/ATA 133), allows connection of 4 IDE devices
FDD Connections	<ul style="list-style-type: none"> ♦ 1 FDD connection, allows connection of 2 FDD devices
Onboard SATA	<ul style="list-style-type: none"> ♦ 4 Serial ATA ports from ULi M1573 controller ♦ supported on the Win 2000/XP operating systems
Peripherals	<ul style="list-style-type: none"> ♦ 1 parallel port supporting Normal/EPP/ECP mode ♦ 1 VGA port, 1 COMA port, onboard COMB connection ♦ 8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable) ♦ 1 front audio connector ♦ 1 PS/2 keyboard port ♦ 1 PS/2 mouse port
Onboard LAN	<ul style="list-style-type: none"> ♦ Onboard Realtek 8110S chip (10/100/1000 Mbit) ♦ 1 RJ 45 port
Onboard Audio	<ul style="list-style-type: none"> ♦ ALC880 CODEC ♦ High Definition Audio ♦ Supports 2 / 4 / 6 / 8 channel audio ♦ Supports Line In; Line Out (Front Speaker Out); MIC; Surround Speaker Out (Rear Speaker Out); Center/Subwoofer Speaker Out; Side Speaker Out connection ♦ Supports SPDIF In/Out connection ♦ CD In connection ♦ supported on the Win 2000/XP operating systems
I/O Control	<ul style="list-style-type: none"> ♦ IT8712
L.F.B. (Local Frame Buffer)	<ul style="list-style-type: none"> ♦ 16MB x 2

(Note 1) Due to standard PC architecture, a certain amount of memory is reserved for system usage and therefore the actual memory size is less than the stated amount.

For example, 4 GB of memory size will instead be shown as 3.xxGB memory during system startup.

Hardware Monitor	<ul style="list-style-type: none"> ◆ System voltage detection ◆ CPU temperature detection ◆ CPU / System fan speed detection ◆ CPU warning temperature ◆ CPU / System fan failure warning ◆ CPU smart fan control
Onboard SATA RAID	<ul style="list-style-type: none"> ◆ Onboard ULI M1573 chipset <ul style="list-style-type: none"> - supports data striping (RAID 0) or mirroring (RAID 1) function or striping + mirroring (RAID 0+1) or JBOD function - supports data transfer rate of up to 150 MB/s - supports hot plugging function - supports a maximum of 4 SATA connections - supported on the Win 2000/XP operating systems
BIOS	<ul style="list-style-type: none"> ◆ Use of licensed AWARD BIOS ◆ Supports Q-Flash
Additional Features	<ul style="list-style-type: none"> ◆ Supports @BIOS ◆ Supports EasyTune (only supports Hardware Monitor function)
Form Factor	<ul style="list-style-type: none"> ◆ Micro ATX form factor; 24.4cm x 24.4cm

1-3 Installation of the CPU and Fan Heat Sink



Before installing the CPU, please comply with the following conditions:

1. Please make sure that the motherboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and heatsink.
4. Please make sure the heatsink is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1 Installation of the CPU

Check the processor pins to see that none are bent. Move the socket lever to the unlocked position as shown in Figure 1.(90° to the plane of the motherboard) prior to inserting the processor. The pin 1 location is designated on the processor by a copper triangle that matches up to a triangle on the socket as shown in Figure 2. Align the processor to the socket and gently lower it into place. Do not force the processor into the socket.

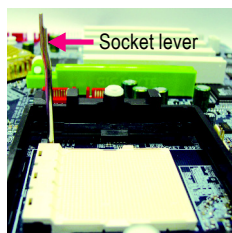


Fig.1

Position lever at a 90 degree angle.

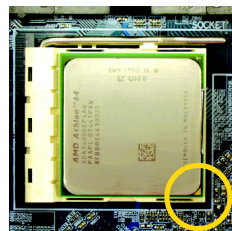


Fig.2

A gold-colored triangle is marked one edge of the CPU. Please align this edge with the socket edge closest to the CPU lever. Gently place the CPU into position making sure that the CPU pins fit perfectly into their holes. Once the CPU is positioned into its socket, place one finger down on the middle of the CPU and gently press the metal lever back into its original position.



Please use extra care when installing the CPU. The CPU will not fit if positioned incorrectly. Rather than applying force, please change the positioning of the CPU.

1-3-2 Installation of the Fan Heat Sink

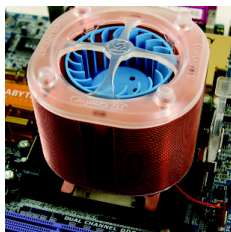


Fig.1

Before installing the heat sink, please first add an even layer of heat sink paste on the surface of the CPU. Install all the heat sink components (Please refer to the heat sink manual for detailed installation instructions).

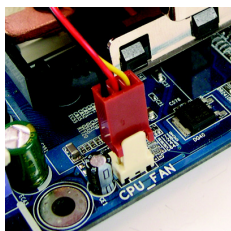


Fig.2

Please connect the heat sink power connector to the CPU_FAN connector located on the motherboard so that the heat sink can properly function to prevent CPU overheating.



The heat sink may adhere to the CPU as a result of hardening of the heat sink paste. To prevent such an occurrence, it is suggested that either thermal tape rather than heat sink paste be used for heat dissipation or using extreme care when removing the heat sink.

1-4 Installation of Memory



Before installing the memory modules, please comply with the following conditions:

1. Please make sure that the memory used is supported by the motherboard. It is recommended that memory of similar capacity, specifications and brand be used.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

The motherboard supports DDR memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction. The memory capacity used can differ with each slot.

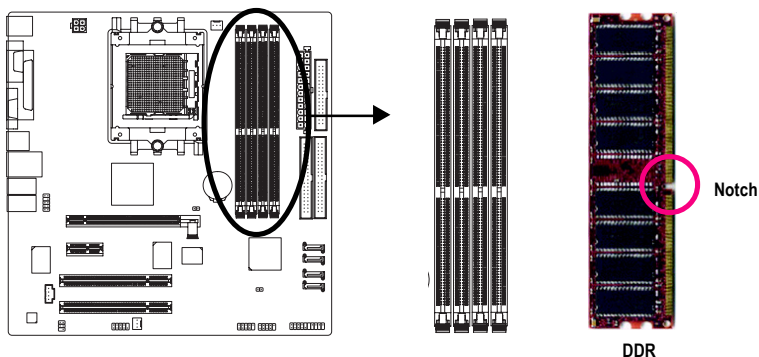


Fig.1

The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.



Fig.2

Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.

Reverse the installation steps when you wish to remove the DIMM module.

Dual Channel Memory Configuration

The GA-K8A480M-9 supports the Dual Channel Technology. When the Dual Channel Technology is activated, the bandwidth of memory bus will be double the original one.

Due to CPU limitation, if you want to operate the Dual Channel Technology, please follow the guidelines below for Dual Channel memory configuration.

1. Dual Channel mode will not be enabled if only one DDR memory module is installed.
2. To enable Dual Channel mode with 2 memory modules (it is recommended to use memory modules of identical brand, size, chips, and speed), you must install them into DIMM sockets of the same color.
3. To enable Dual Channel mode with 4 memory modules, it is recommended to use memory modules of identical brand, size, chips, and speed.

The following is a Dual Channel Memory configuration table: (DS: Double Side, SS: Single Side)

	DDR 1	DDR 2	DDR 3	DDR 4
2 memory modules	DS/SS	DS/SS	X	X
	X	X	DS/SS	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS



NOTE

If two memory modules are to be used to achieve Dual Channel mode, we recommend installing them in DDR1 and DDR2 DIMM sockets.



CAUTION

All of the memory configurations below will cause system unable to boot.
(DS: Double Side, SS: Single Side)

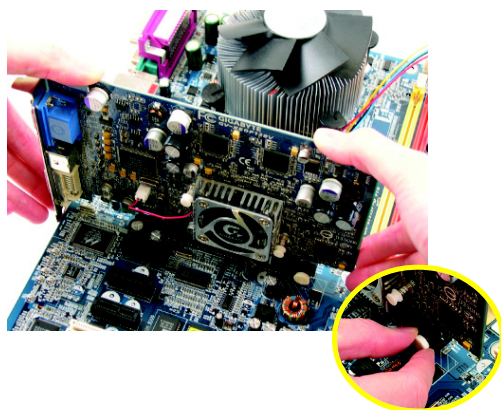
	DDR1	DDR2	DDR3	DDR4
1 memory module	X	DS/SS	X	X
	X	X	X	DS/SS
2 memory modules	X	DS/SS	DS/SS	X
	DS/SS	X	X	DS/SS
	X	DS/SS	X	DS/SS
3 memory modules	DS/SS	DS/SS	DS/SS	X
	X	DS/SS	DS/SS	DS/SS
	DS/SS	X	DS/SS	DS/SS
	DS/SS	DS/SS	X	DS/SS

1-5 Installation of Expansion Cards

You can install your expansion card by following the steps outlined below:

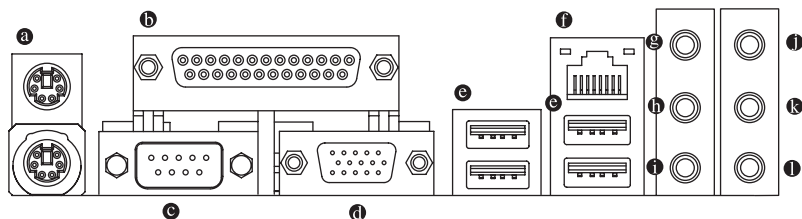
1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

Installing a PCI Express x 16 expansion card:



Please carefully pull out the small white-drawable bar at the end of the PCI Express x 16 slot when you try to install/uninstall the VGA card. Please align the VGA card to the onboard PCI Express x 16 slot and press firmly down on the slot. Make sure your VGA card is locked by the small white-drawable bar.

1-6 I/O Back Panel Introduction



a PS/2 Keyboard and PS/2 Mouse Connector

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).

b Parallel Port

The parallel port allows connection of a printer, scanner and other peripheral devices.

c COM A (Serial Port)

Connects to serial-based mouse or data processing devices.

d VGA Port

Monitor can be connected to VGA port.

e USB Port

Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface.

Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

f LAN Port

The provided Internet connection is Gigabit Ethernet, providing data transfer speeds of 10/100/1000Mbps.

g Line In

Devices like CD-ROM, walkman etc. can be connected to Line In jack.

h Line Out (Front Speaker Out)

Connect the stereo speakers, earphone or front surround speakers to this connector.

i MIC In

Microphone can be connected to MIC In jack.

j Rear Speaker Out

Connect the rear surround speakers to this connector.

k Center/Subwoofer Speaker Out

Connect the Center/Subwoofer speakers to this connector.

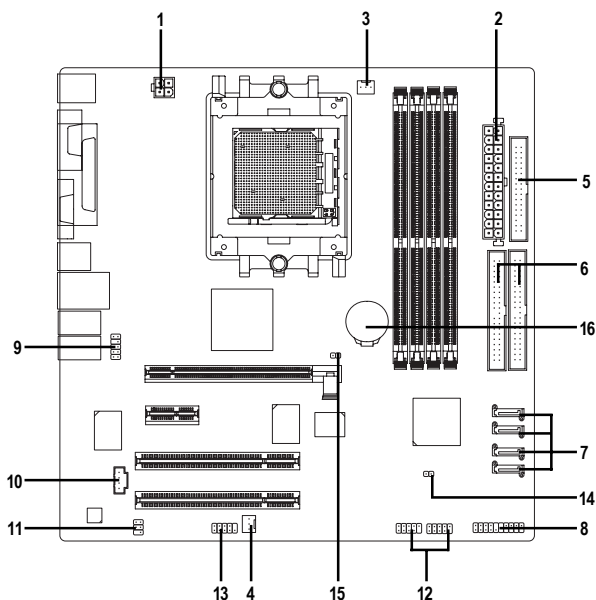
l Side Speaker Out

Connect the side surround speakers to this connector.



You can use audio software to configure 2-/4-/6-/8-channel audio functioning.

1-7 Connectors Introduction



1) ATX_12V	9) AZALIA_FP
2) ATX (Power Connector)	10) CD_IN
3) CPU_FAN	11) SPDIF_IO
4) SYS_FAN	12) F_USB1 / F_USB2
5) FDD	13) COMB
6) IDE1 / IDE2	14) CI
7) SATA0/ATA1/SATA2/SATA3	15) CLR_CMOS
8) F_PANEL	16) BAT

1/2) ATX_12V/ATX (Power Connector)

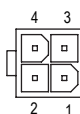
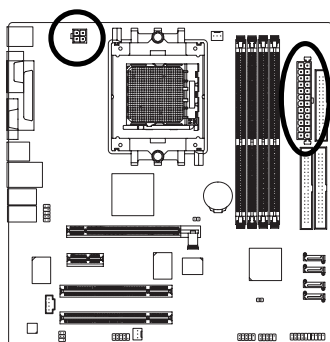
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

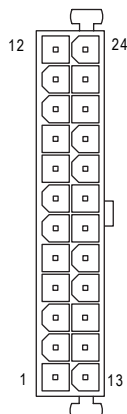
Caution!

Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start.

If you use a 24-pin ATX power supply, please remove the small cover on the power connector on the motherboard before plugging in the power cord; otherwise, please do not remove it.



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V



Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	Power Good
9	5V SB(stand by +5V)
10	+12V
11	+12V
12	3.3V(Only for 24pins ATX)
13	3.3V
14	-12V
15	GND
16	PS_ON(soft On/Off)
17	GND
18	GND
19	GND
20	-5V
21	+5V
22	+5V
23	+5V
24	GND

3/4) CPU_FAN / SYS_FAN (Cooler Fan Power Connector)

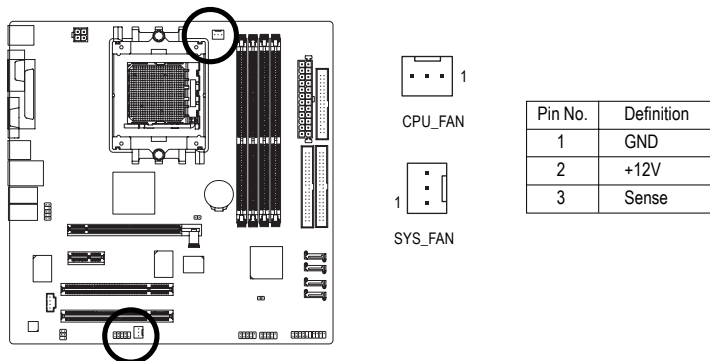
The cooler fan power connector supplies a +12V power voltage via a 3-pin power connector and possesses a foolproof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Please remember to connect the power to the cooler to prevent system overheating and failure.

Caution!

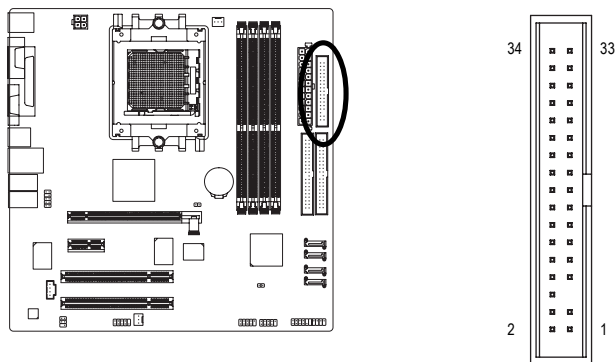
Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.



5) FDD (FDD Connector)

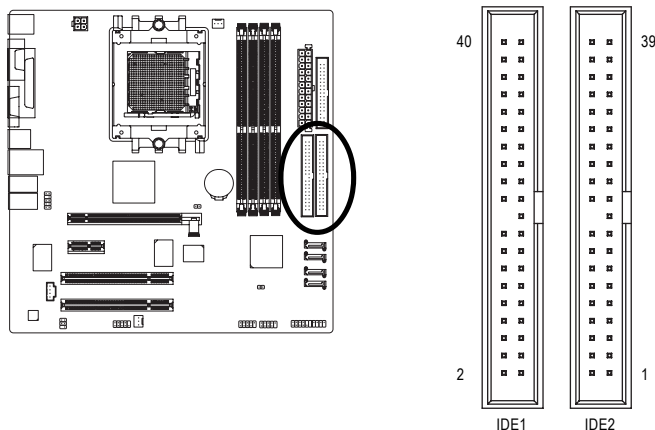
The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB.

Please connect the red power connector wire to the pin1 position.



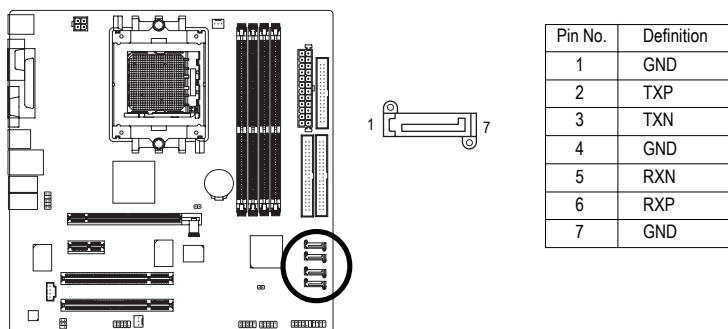
6) IDE1 / IDE2 (IDE Connector)

An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information on settings, please refer to the instructions located on the IDE device).



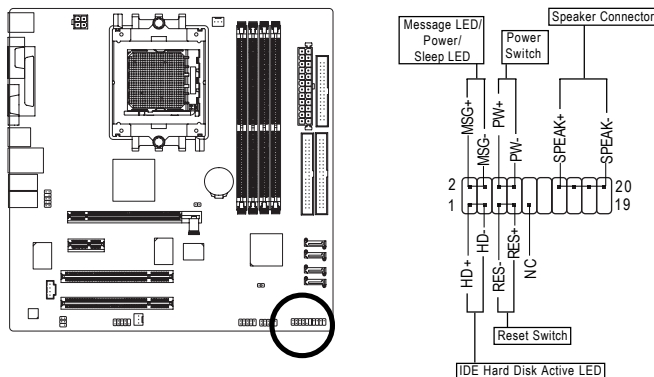
7) SATA0/SATA1/SATA2/SATA3 (Serial ATA Connectors, Controlled by ULI M1573)

Serial ATA can provide 150MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA and install the proper driver in order to work properly.



8) F_PANEL (Front Panel Jumper)

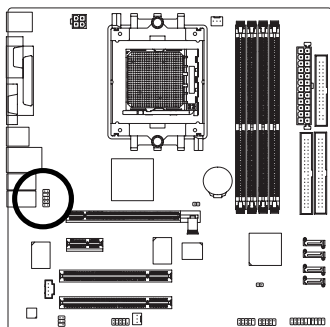
Please connect the power LED, PC speaker, reset switch and power switch etc. of your chassis front panel to the F_PANEL connector according to the pin assignment below.



HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPEAK (Speaker Connector)	Pin 1: Power Pin 2- Pin 3: NC Pin 4: Data(-)
RES (Reset Switch)	Open: Normal Close: Reset Hardware System
PW (Power Switch)	Open: Normal Close: Power On/Off
MSG(Message LED/Power/Sleep LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
NC	NC

9) AZALIA_FP (Front Audio Panel Connector)

This connector is supported to connect HD(High Definition) Audio and AC'97 Audio. Check the pin assignment carefully while you connect the audio panel cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional audio panel cable, please contact your local dealer.



HD Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	Line2_R
6	FSENSE1
7	FAUDIO_JD
8	No Pin
9	LINE2_L
10	FSENSE2

AC'97 Audio:

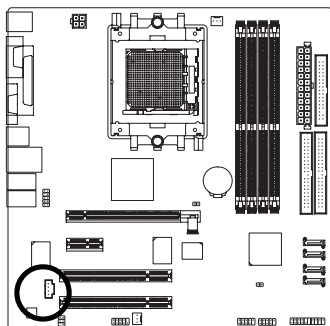
Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC



HD Audio is the default setting for this connector. To enable AC'97 Audio, from BIOS settings, set **Front Panel Type** under **Integrated Peripherals** to **AC97**.

10) CD_IN (CD In Connector)

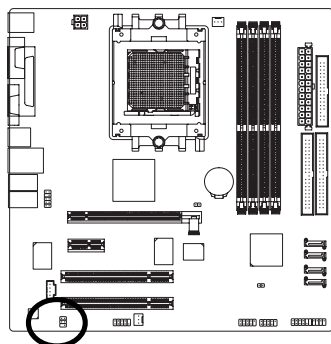
Connect CD-ROM or DVD-ROM audio out to the connector.



Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

11) SPDIF_IO (SPDIF In/Out)

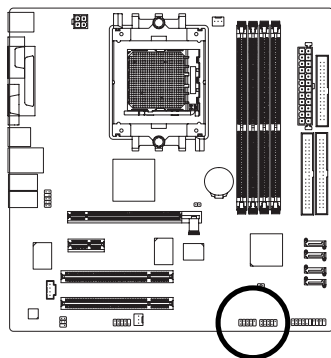
The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function. Be careful with the polarity of the SPDIF_IO connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.



Pin No.	Definition
1	Power
2	No Pin
3	SPDIF
4	SPDIF I
5	GND
6	GND

12) F_USB1 / F_USB2 (Front USB Connector)

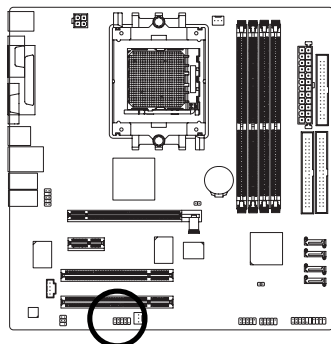
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



Pin No.	Definition
1	Power
2	Power
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

13) COMB (Serial Port Connector)

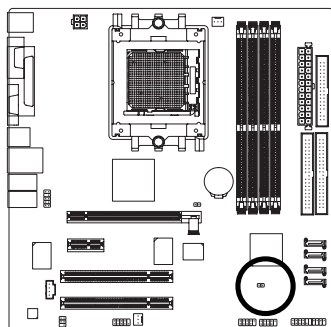
Be careful with the polarity of the COM connector. Check the pin assignment carefully while you connect the COM cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional COM cable, please contact your local dealer.



Pin No.	Definition
1	NDCDB-
2	NSIN B
3	NSOUT B
4	NDTRB-
5	GND
6	NDSRB-
7	NRTS B-
8	NCTSB-
9	NRI B-
10	No Pin

14) CI (Chassis Intrusion, Case Open)

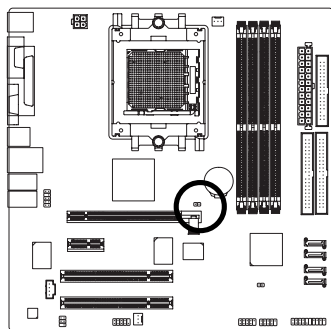
This 2-pin connector allows your system to detect if the chassis cover is removed. You can check the "Case Opened" status in BIOS Setup.



Pin No.	Definition
1	Signal
2	GND

15) CLR_CMOS (Clear CMOS)

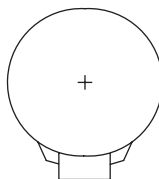
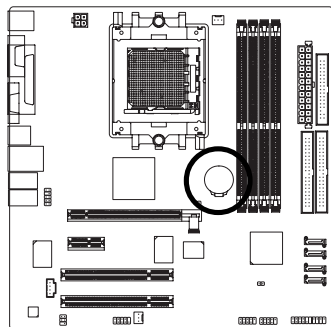
You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily short 1-2 pin. Default doesn't include the "Shunter" to prevent from improper use this jumper.



□ 1 Open: Normal

■ 1 Short: Clear CMOS

16) BAT(Battery)



- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery, wait for 30 seconds.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) includes a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.

The CMOS SETUP saves the configuration in the CMOS SRAM of the motherboard.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS SRAM.

When the power is turned on, pushing the button during the BIOS POST (Power-On Self Test) will take you to the CMOS SETUP screen. You can enter the BIOS setup screen by pressing "Ctrl + F1".

When setting up BIOS for the first time, it is recommended that you save the current BIOS to a disk in the event that BIOS needs to be reset to its original settings. If you wish to upgrade to a new BIOS, either Gigabyte's Q-Flash or @BIOS utility can be used.

Q-Flash allows the user to quickly and easily update or backup BIOS without entering the operating system. @BIOS is a Windows-based utility that does not require users to boot to DOS before upgrading BIOS but directly download and update BIOS from the Internet.

CONTROL KEYS

<↑><↓><←><→>	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the file-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

Main Menu

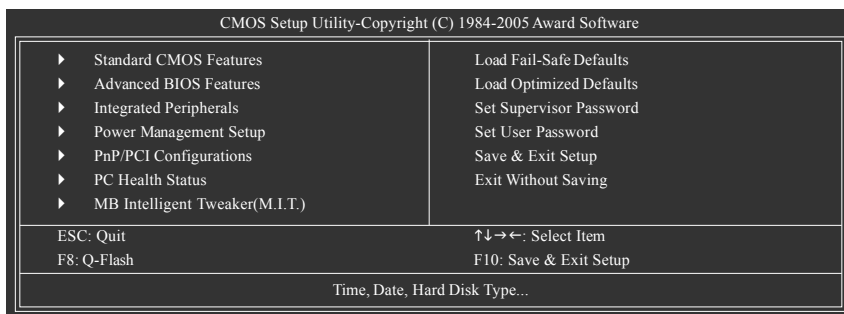
The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu (For example: BIOS Ver. : D6)

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (as figure below) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



NOTE

If you can't find the setting you want, please press "Ctrl+F1" to search the advanced option hidden.

■ Standard CMOS Features

This setup page includes all the items in standard compatible BIOS.

■ Advanced BIOS Features

This setup page includes all the items of Award special enhanced features.

■ Integrated Peripherals

This setup page includes all onboard peripherals.

■ Power Management Setup

This setup page includes all the items of Green function features.

■ PnP/PCI Configuration

This setup page includes all the configurations of PCI & PnP ISA resources.

■ PC Health Status

This setup page is the System auto detect Temperature, voltage, fan, speed.

■ MB Intelligent Tweaker(M.I.T.)

This setup page is control CPU clock and frequency ratio.

■ Load Fail-Safe Defaults

Fail-Safe Defaults indicates the value of the system parameters which the system would be in safe configuration.

■ Load Optimized Defaults

Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

■ Set Supervisor Password

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

■ Set User Password

Change, set, or disable password. It allows you to limit access to the system.

■ Save & Exit Setup

Save CMOS value settings to CMOS and exit setup.

■ Exit Without Saving

Abandon all CMOS value changes and exit setup.

2-1 Standard CMOS Features

CMOS Setup Utility-Copyright (C) 1984-2005 Award Software		
Standard CMOS Features		
Date (mm:dd:yy)	Thu, Jan 27 2005	Item Help
Time (hh:mm:ss)	15: 6: 6	Menu Level▶
▶ IDE Primary Master	[None]	Change the day, month, year
▶ IDE Primary Slave	[None]	<Week>
▶ IDE Secondary Master	[None]	Sun. to Sat.
▶ IDE Secondary Slave	[None]	<Month>
Drive A	[1.44M, 3.5"]	Jan. to Dec.
Floppy 3 Mode Suport	[Disabled]	<Day>
Holt On	[All, But Keyboard]	1 to 31 (or maximum allowed in the month)
Base Memory	640K	<Year>
Extended Memory	127M	1999 to 2098
Total Memory	128M	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

☞ Date

The date format is <week>, <month>, <day>, <year>.

- ▶▶ Week The week, from Sun to Sat, determined by the BIOS and is display only
- ▶▶ Month The month, Jan. Through Dec.
- ▶▶ Day The day, from 1 to 31 (or the maximum allowed in the month)
- ▶▶ Year The year, from 1999 through 2098

☞ Time

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

☞ IDE Primary/Secondary Master, Slave

- ▶▶ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.
- ▶▶ IDE Device Setup. You can use one of three methods:
 - Auto Allows BIOS to automatically detect IDE devices during POST(default)
 - None Select this if no IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.
 - Manual User can manually input the correct settings
- ▶▶ Access Mode Use this to set the access mode for the hard drive. The four options are: CHS/LBA/Large/Auto(default:Auto)

- » Capacity Capacity of currently installed hard drive.

Hard drive information should be labeled on the outside drive casing. Enter the appropriate option based on this information.

- » Cylinder Number of cylinders
 » Head Number of heads
 » Precomp Write precomp
 » Landing Zone Landing zone
 » Sector Number of sectors

Drive A

The category identifies the types of floppy disk drive A that has been installed in the computer.

- » None No floppy drive installed
 » 360K, 5.25" 5.25 inch PC-type standard drive; 360K byte capacity.
 » 1.2M, 5.25" 5.25 inch AT-type high-density drive; 1.2M byte capacity
 (3.5 inch when 3 Mode is Enabled).
 » 720K, 3.5" 3.5 inch double-sided drive; 720K byte capacity
 » 1.44M, 3.5" 3.5 inch double-sided drive; 1.44M byte capacity.
 » 2.88M, 3.5" 3.5 inch double-sided drive; 2.88M byte capacity.

Floppy 3 Mode Support (for Japan Area)

- » Disabled Normal Floppy Drive. (Default value)
 » Drive A Drive A is 3 mode Floppy Drive.

Halt on

The category determines whether the computer will stop if an error is detected during power up.

- » No Errors The system boot will not stop for any error that may be detected and you will be prompted.
 » All Errors Whenever the BIOS detects a non-fatal error the system will be stopped.
 » All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
 » All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.
 » All, But Disk/Key The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

» Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

» Extended Memory

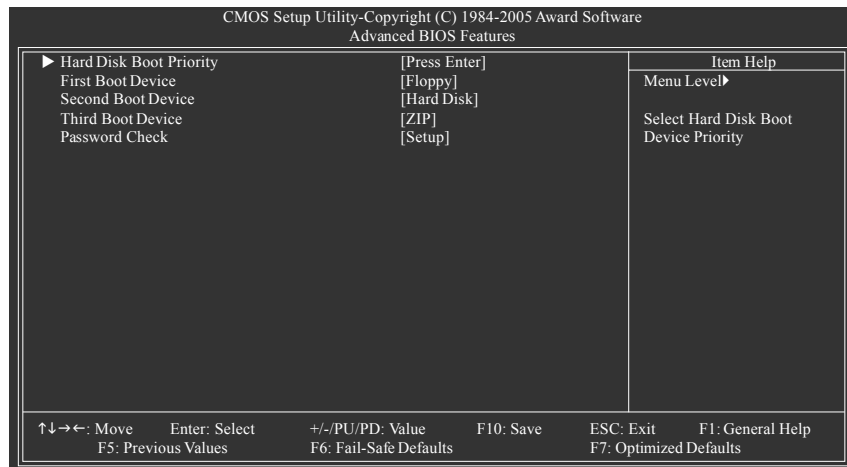
The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

» Total Memory

This item displays the memory size that used.

2-2 Advanced BIOS Features



Hard Disk Boot Priority

Select boot sequence for onboard(or add-on cards) SCSI, RAID, etc.

Use <↑> or <↓> to select a device, then press<+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

First / Second / Third Boot Device

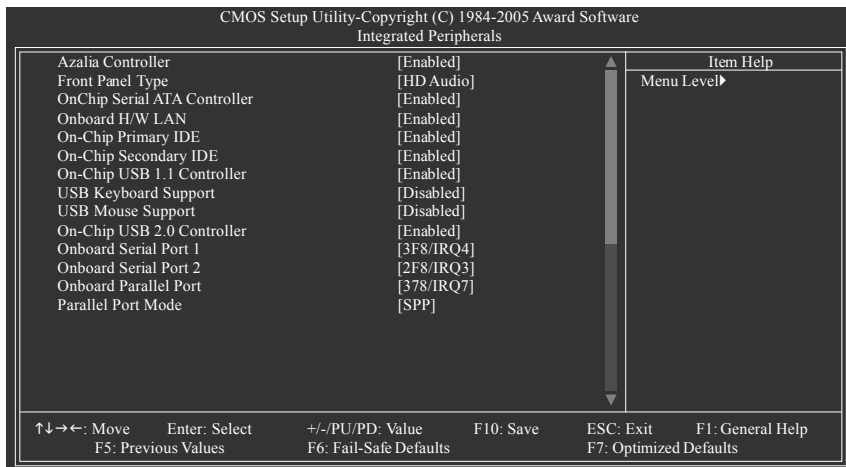
- ▶ Floppy Select your boot device priority by Floppy.
- ▶ LS120 Select your boot device priority by LS120.
- ▶ Hard Disk Select your boot device priority by Hard Disk.
- ▶ CDROM Select your boot device priority by CDROM.
- ▶ ZIP Select your boot device priority by ZIP.
- ▶ USB-FDD Select your boot device priority by USB-FDD.
- ▶ USB-ZIP Select your boot device priority by USB-ZIP.
- ▶ USB-CDROM Select your boot device priority by USB-CDROM.
- ▶ USB-HDD Select your boot device priority by USB-HDD.
- ▶ Legacy LAN Select your boot device priority by Legacy LAN.
- ▶ Disabled Disable this function.

Password Check

- ▶ Setup The system will boot but will not access to Setup page if the correct password is not entered at the prompt. (Default value)
- ▶ System The system will not boot and will not access to Setup page if the correct password is not entered at the prompt.

If you want to cancel the setting of password, please just press ENTER to make [SETUP] empty.

2-3 Integrated Peripherals



⌵ Azalia Controller

- ▶ Enabled Enable Azalia audio function. (Default value)
- ▶ Disabled Disable Azalia audio function.

⌵ Front Panel Type

If you connect HD Audio Panel to the AZALIA_FP connector, set this item to **HD Audio**. If you connect AC97 Audio Panel to the AZALIA_FP connector, set this item to **AC97**.

- ▶ AC97 Set front audio panel type to AC97.
- ▶ HD Audio Set front audio panel type to HD Audio. (Default value)

⌵ OnChip Serial ATA Controller

- ▶ Enabled Enable onboard Serial ATA function. (Default value)
- ▶ Disabled Disable onboard Serial ATA function.

⌵ Onboard H/W LAN

- ▶ Enabled Enable Onboard H/W LAN function. (Default value)
- ▶ Disabled Disable this function.

⌵ On-Chip Primary IDE

- ▶ Enabled Enable onboard 1st channel IDE port. (Default value)
- ▶ Disabled Disable onboard 1st channel IDE port.

⌵ On-Chip Secondary IDE

- ▶ Enabled Enable onboard 2nd channel IDE port. (Default value)
- ▶ Disabled Disable onboard 2nd channel IDE port.

⌵ On-Chip USB 1.1 Controller

- ▶ Enabled Enable USB 1.1 controller. (Default value)
- ▶ Disabled Disable USB 1.1 controller.

☞ **USB Keyboard Support**

- » Enabled Enable USB Keyboard Support.
- » Disabled Disable USB Keyboard Support. (Default value)

☞ **USB Mouse Support**

- » Enabled Enable USB Mouse Support.
- » Disabled Disable USB Mouse Support. (Default value)

☞ **On-Chip USB 2.0 Controller**

Disable this function if you are not using onboard USB 2.0 feature.

- » Enabled Enable USB 2.0 Controller. (Default value)
- » Disabled Disable USB 2.0 Controller.

☞ **Onboard Serial Port 1**

- » Auto BIOS will automatically setup the port 1 address.
- » 3F8/IRQ4 Enable onboard Serial port 1 and address is 3F8/IRQ4. (Default value)
- » 2F8/IRQ3 Enable onboard Serial port 1 and address is 2F8/IRQ3.
- » 3E8/IRQ4 Enable onboard Serial port 1 and address is 3E8/IRQ4.
- » 2E8/IRQ3 Enable onboard Serial port 1 and address is 2E8/IRQ3.
- » Disabled Disable onboard Serial port 1.

☞ **Onboard Serial Port 2**

- » Auto BIOS will automatically setup the port 2 address.
- » 3F8/IRQ4 Enable onboard Serial port 2 and address is 3F8/IRQ4.
- » 2F8/IRQ3 Enable onboard Serial port 2 and address is 2F8/IRQ3. (Default value)
- » 3E8/IRQ4 Enable onboard Serial port 2 and address is 3E8/IRQ4.
- » 2E8/IRQ3 Enable onboard Serial port 2 and address is 2E8/IRQ3.
- » Disabled Disable onboard Serial port 2.

☞ **Onboard Parallel port**

- » Disabled Disable onboard LPT port.
- » 378/IRQ7 Enable onboard LPT port and address is 378/IRQ7. (Default value)
- » 278/IRQ5 Enable onboard LPT port and address is 278/IRQ5.
- » 3BC/IRQ7 Enable onboard LPT port and address is 3BC/IRQ7.

☞ **Parallel Port Mode**

- » SPP Using Parallel port as Standard Parallel Port. (Default value)
- » EPP Using Parallel port as Enhanced Parallel Port.
- » ECP Using Parallel port as Extended Capabilities Port.
- » ECP+EPP Using Parallel port as ECP & EPP mode.

2-4 Power Management Setup

CMOS Setup Utility-Copyright (C) 1984-2005 Award Software			
Power Management Setup			
ACPI Suspend Type	[S1(POS)]	Item Help	
Power LED in S1 state	[Blinking]	Menu Level▶	
Soft-Off by PWRBTN	[Instant-off]		
WakeUp/PowerOn by PCI Card	[Disabled]	[S1]	
WakeUp/PowerOn by Ring	[Disabled]	Set suspend type to	
USB Dev WakeUp	[Enabled]	Power On Suspend under	
Resume by Alarm	[Disabled]	ACPI OS	
x Date (of Month) Alarm	Everyday		
x Time (hh:mm:ss) Alarm	0 : 0 : 0		
Power On By Mouse	[Disabled]	[S3]	
Power On By Keyboard	[Disabled]	Set suspend type to	
x KB Power ON Password	Enter	Suspend to RAM under	
AC Back Function	[Soft-Off]	ACPI OS	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults			

ACPI Suspend Type

- S1(POS) Set ACPI suspend type to S1/POS(Power On Suspend). (Default value)
- S3(STR) Set ACPI suspend type to S3/STR(Suspend To RAM).

➡ **Power LED in S1 state**

- Blinking In standby mode(S1), power LED will blink. (Default value)
- Dual/OFF In standby mode(S1):
 - a. If use single color LED, power LED will turn off.
 - b. If use dual color LED, power LED will turn to another color.

 Soft-Off by PWRBTN

- ▶▶ Instant-off Press power button then Power off instantly. (Default value)
- ▶▶ Delay 4 Sec. Press power button 4 sec. to Power off. Enter suspend if button is pressed less than 4 sec.

WakeUp\PowerOn by PCI Card

- | | |
|-------------|--|
| ▶▶ Disabled | Disable this function. (Default value) |
| ▶▶ Enabled | Enable PME Event Wake up. |

☞ **WakeUp\PowerOn by Ring**

An incoming call via modem can awake the system from any suspend state or an input signal comes from the other client server on the LAN can awake the system from any suspend state.

- ▶ Disabled Disable Modem Ring on/wake on Lan function. (Default value)
- ▶ Enabled Enable Modem Ring on/wake on Lan.

☞ **USB Dev WakeUp**

You can enable this function when **ACPI Suspend Type** set to **S3(STR)**.

- » Disabled Disable this function.
- » Enabled Enable USB device can wakeup system from S3. (Default value)

☞ **Resume by Alarm**

You can set "Resume by Alarm" item to enabled and key in Date/time to power on system.

- » Disabled Disable this function. (Default value)
- » Enabled Enable alarm function to POWER ON system.

If Resume by Alarm is Enabled.

- » Date (of Month) Alarm : Everyday, 1~31
- » Time (hh: mm: ss) Alarm : (0~23) : (0~59) : (0~59)

☞ **Power On By Mouse**

- » Disabled Disable this function. (Default value)
- » Double Click Double click on PS/2 mouse left button to power on the system.

☞ **Power On By Keyboard**

- » Password Enter from 1 to 5 characters to set the Keyboard Power On Password.
- » Disabled Disabled this function. (Default value)
- » Keyboard 98 If your keyboard have "POWER Key" button, you can press the key to power on the system.
- » Any KEY Press any keys on your keyboard to power on the system.

☞ **KB Power ON Password**

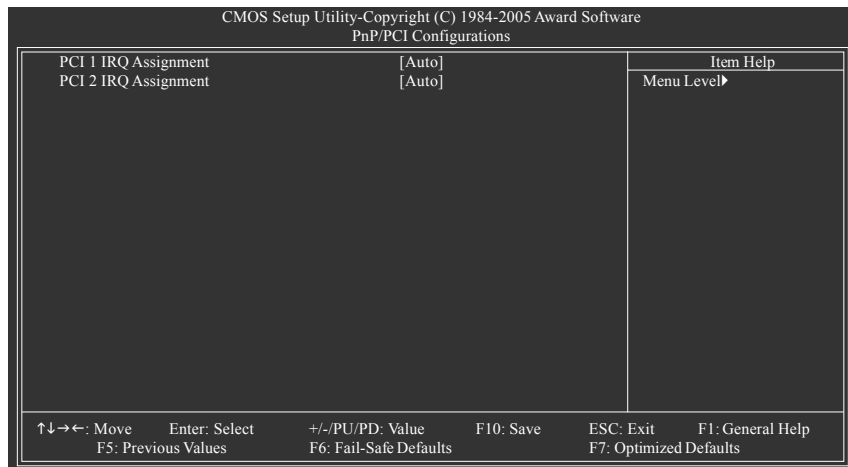
When "Power On by Keyboard" set at Password, you can set the password here.

- » Enter Input password (from 1 to 5 characters) and press Enter to set the Keyboard Power On password.

☞ **AC Back Function**

- » Soft-Off When AC-power back to the system, the system will be in "Off" state. (Default value)
- » Full-On When AC-power back to the system, the system always in "On" state.
- » Memory When AC-power back to the system, the system will return to the Last state before AC-power off.

2-5 PnP/PCI Configurations



PCI 1 IRQ Assignment

- ▶▶ Auto Auto assign IRQ to PCI 1. (Default value)
- ▶▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1.

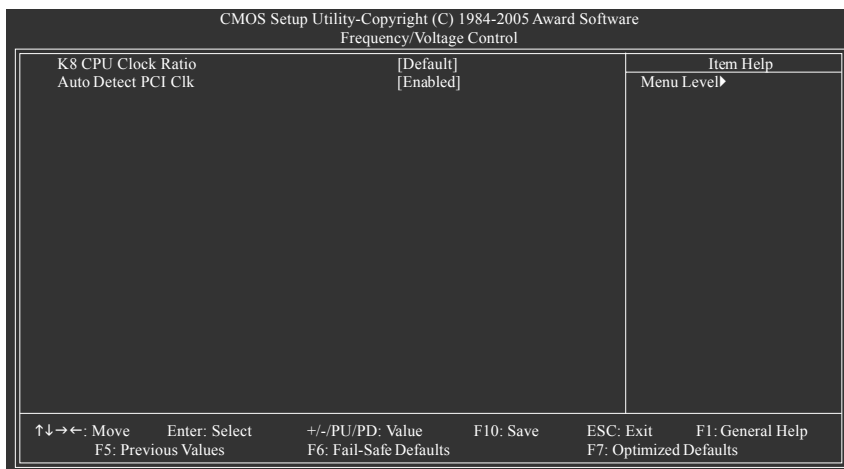
PCI 2 IRQ Assignment

- ▶▶ Auto Auto assign IRQ to PCI 2. (Default value)
- ▶▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

CPU Smart FAN Control

- ▶▶ Disabled Disable this function.
- ▶▶ Enabled Enable CPU Smart Fan control function. (Default value)
 - a. When the CPU temperature is higher than 69 degrees Celsius, CPU fan will run at full speed.
 - b. The speed of CPU fan will increase linearly depend on the temperature if the temperature is more than 41 degree and less than 69 degree.
 - c. When the CPU temperature is lower than 40 degrees Celsius, CPU fan will be disable.

2-7 MB Intelligent Tweaker(M.I.T.)



Incorrect using these features may cause your system broken. For power end-user use only.

K8 CPU Clock Ratio

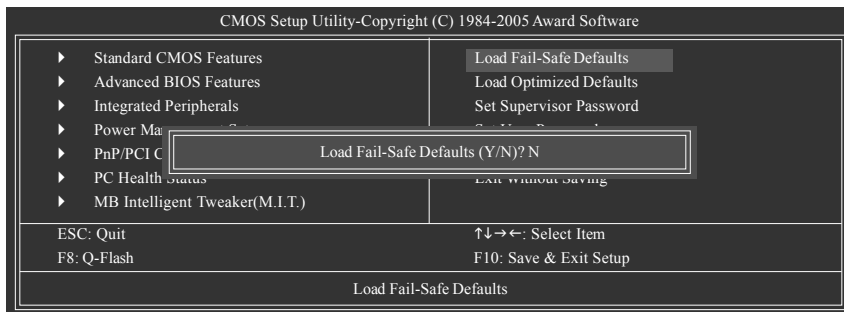
This setup option will automatically assign by CPU detection.

The option will display "Locked" and read only if the CPU ratio is not changeable.

Auto Detect PCI Clk

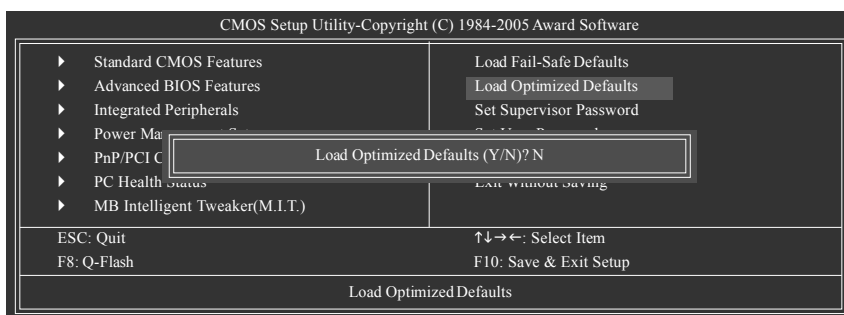
- ▶▶ Enabled Detect PCI clock automatically. (Default value)
- ▶▶ Disabled Disable this function.

2-8 Load Fail-Safe Defaults



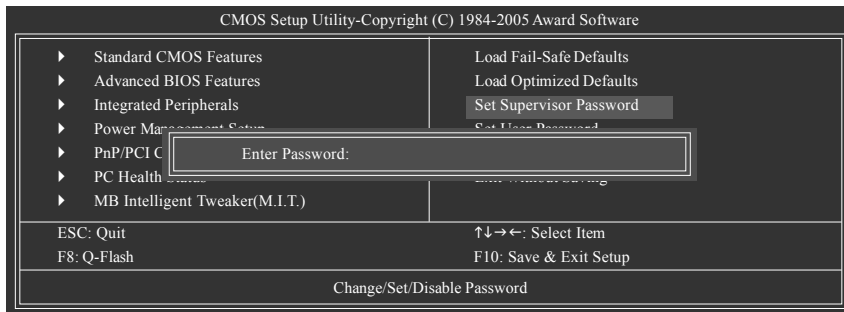
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

2-9 Load Optimized Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

2-10 Set Supervisor/User Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

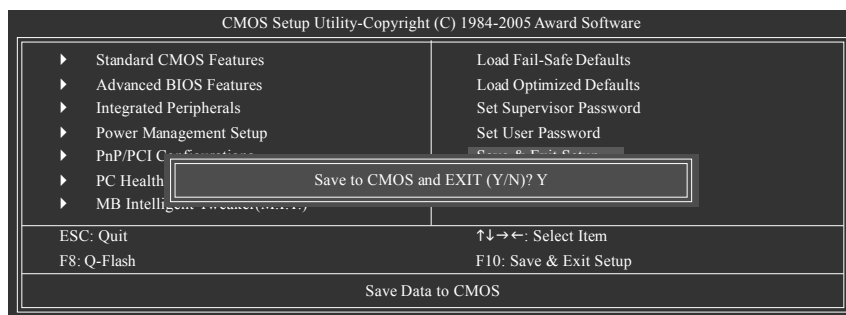
The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

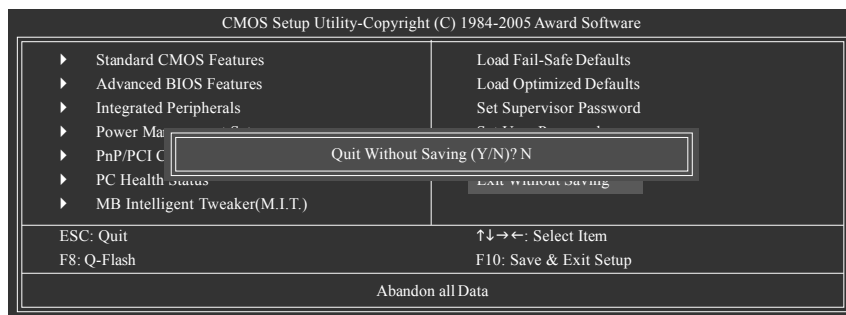
2-11 Save & Exit Setup



Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

2-12 Exit Without Saving



Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

Chapter 3 Drivers Installation

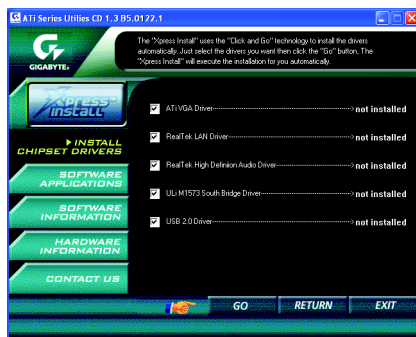


Pictures below are shown in Windows XP.

Insert the driver CD-title that came with your motherboard into your CD-ROM drive, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the Setup.exe.

3-1 Install Chipset Drivers

After insert the driver CD, "Xpress Install" will scan automatically the system and then list all the drivers that recommended to install. The "Xpress Install" uses the "Click and Go" technology to install the drivers automatically. Just select the drivers you want then click the "GO" button. The "Xpress Install" will execute the installation for you automatically.



Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

System will reboot automatically after install the drivers, afterward you can install others application.



For USB2.0 driver support under Windows XP operating system, please use Windows Service Pack. After install Windows Service Pack, it will show a question mark "?" in "Universal Serial Bus controller" under "Device Manager". Please remove the question mark and restart the system (System will auto-detect the right USB2.0 driver).

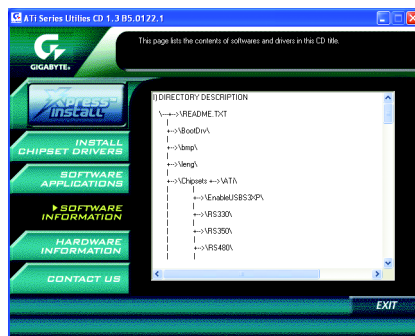
3-2 Software Application

This page displays all the tools that Gigabyte developed and some free software. You can click an item to install it.



3-3 Software Information

This page lists the contents of software and drivers in this CD-title.



3-4 Hardware Information

This page lists all device you have for this motherboard.



3-5 Contact Us

Please see the last page for details.



Chapter 4 Appendix

4-1 Unique Software Utilities

4-1-1 EasyTune 5 Introduction

EasyTune 5 presents the most convenient Windows based system performance enhancement and manageability utility. Featuring several powerful yet easy to use tools such as 1) Overclocking for enhancing system performance, 2) C.I.A. and M.I.B. for special enhancement for CPU and Memory, 3) Smart-Fan control for managing fan speed control of both CPU cooling fan and North-Bridge Chipset cooling fan, 4) PC health for monitoring system status.^(Note)

User Interface Overview



	Button / Display	Description
1.	Overclocking	Enters the Overclocking setting page
2.	C.I.A./C.I.A.2 and M.I.B./M.I.B.2	Enters the C.I.A./2 and M.I.B./2 setting page
3.	Smart-Fan	Enters the Smart-Fan setting page
4.	PC Health	Enters the PC Health setting page
5.	GO	Confirmation and Execution button
6.	"Easy Mode" & "Advance Mode"	Toggles between Easy and Advance Mode
7.	Display screen	Display panel of CPU frequency
8.	Function display LEDs	Shows the current functions status
9.	GIGABYTE Logo	Log on to GIGABYTE website
10.	Help button	Display EasyTune™ 5 Help file
11.	Exit or Minimize button	Quit or Minimize EasyTune™ 5 software

(Note) EasyTune 5 functions may vary depending on different motherboards.

4-1-2 Xpress Recovery Introduction



What is Xpress Recovery ?

Xpress Recovery is a utility used to back up and restore an OS partition. If the hard drive is not working properly, the user can restore the drive to its original state.



1. Supports FAT16, FAT32, and NTFS formats
2. Must be connected to the IDE1 Master
3. Allows installation of only one OS
4. Must be used with an IDE hard disk supporting HPA
5. The first partition must be set as the boot partition. When the boot partition is backed up, please do not alter its size.
6. Xpress Recovery is recommended when using Ghost to return boot manager to NTFS format.

How to use the Xpress Recovery

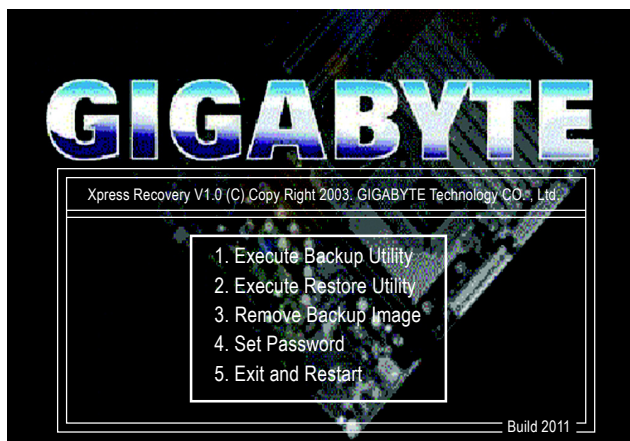
1. Boot from CD-ROM (BMP Mode)

Enter the BIOS menu, select "Advanced BIOS Feature" and set to boot from CD-ROM. Insert the provided driver CD into your CD drive, then save and exit the BIOS menu. Once the computer has restarted, the phrase "Boot from CD:" will appear at the bottom left-hand corner of the screen. When "Boot from CD:" appears, press any key to enter Xpress Recovery.

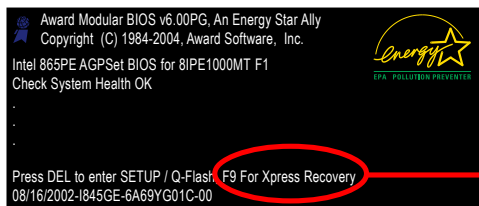
Once you have completed this step, subsequent access to Xpress Recovery can also function by pressing the F9 key during computer power on.



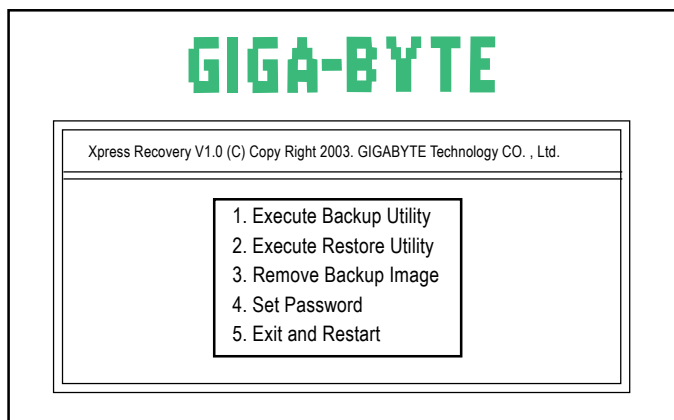
Boot from CD:



2. Press F9 during powering on the computer. (Text Mode)



F9 For Xpress Recovery



1. If you have already entered Xpress Recovery by booting from the CD-ROM, you can enter Xpress Recovery in the future by pressing the F9 key.
2. System storage capacity as well as drive reading/writing speed will affect backup speed.
3. It is recommended that Xpress Recovery be immediately installed after OS and all required driver and software installations are complete.

1. Execute Backup Utility:

Press B to Backup your System or Esc to Exit

The backup utility will automatically scan your system and back up data as a backup image in your hard drive.



Not all systems support access to Xpress Recovery by pressing the F9 key during computer power on. If this is the case, please use the boot from CD-ROM method to enter Xpress Recovery.

2. Execute Restore Utility:

This program will recover your system to factory default.

Press R to restore your system back to factory default or press Esc to exit

Restores backup image to original state.

3. Remove Backup Image:

Remove backup image. Are you sure? (Y/N)

Remove the backup image.

4. Set Password:

Please input a 4-16 character long password (a-z or 0-9) or press Esc to exit

You can set a password to enter Xpress Recovery to protect your hard disk data. Once this is done, password input will be required to enter Xpress Recovery during the next as well as subsequent system restarts. If you wish to remove the need for password entry, please select "Set Password" and under "New Password/Confirm Password", make sure there is no entry and then press "Enter" to remove password requirement.

5. Exit and Restart:

Exit and restart your computer.

4-1-3 Flash BIOS Method Introduction



Method 1 : Q-Flash™ Utility

Q-Flash™ is a BIOS flash utility embedded in Flash ROM. With this utility, users only have to stay in the BIOS menu when they want to update BIOS. Q-Flash™ allows users to flash BIOS without any utility in DOS or Windows. Using Q-Flash™ indicating no more fooling around with any complicated instructions and operating system since it is in the BIOS menu.



Please note that because updating BIOS has potential risk, please do it with caution!! We are sorry that Gigabyte Technology Co., Ltd is not responsible for damages of system because of incorrect manipulation of updating BIOS to avoid any claims from end-users.

Before You Begin:

Before you start updating BIOS with the Q-Flash™ utility, please follow the steps below first.

1. Download the latest BIOS for your motherboard from Gigabyte's website.
2. Extract the BIOS file downloaded and save the BIOS file (the one with model name.Fxx. For example, 8KNXP.U.Fba) to a floppy disk.
3. Reboot your PC and press **Del** to enter BIOS menu.

The BIOS upgrading guides below are separated into two parts.

If your motherboard has dual-BIOS, please refer to **Part One**.

If your motherboard has single-BIOS, please refer to **Part Two**.

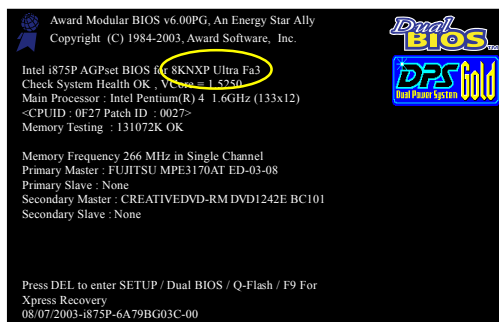
Part One:

Updating BIOS with Q-Flash™ Utility on Dual BIOS Motherboards.

Some of Gigabyte motherboards are equipped with dual BIOS. In the BIOS menu of the motherboards supporting Q-Flash and Dual BIOS, the Q-Flash utility and Dual BIOS utility are combined in the same screen. This section only deals with how to use Q-Flash utility.

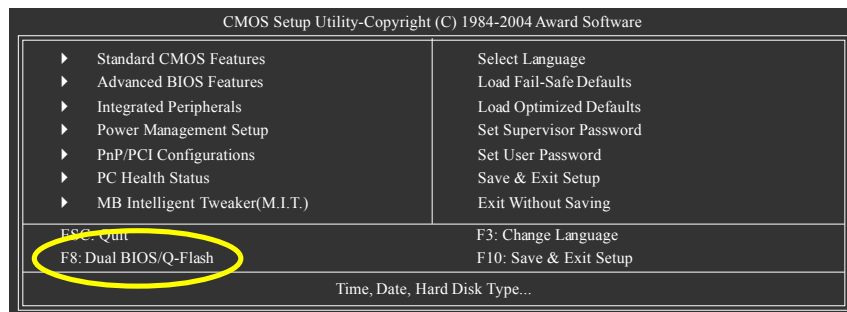
In the following sections, we take GA-8KNXP Ultra as the example to guide you how to flash BIOS from an older version to the latest version. For example, from Fa3 to Fba.

The BIOS file is Fa3
before updating



Entering the Q-Flash™ utility:

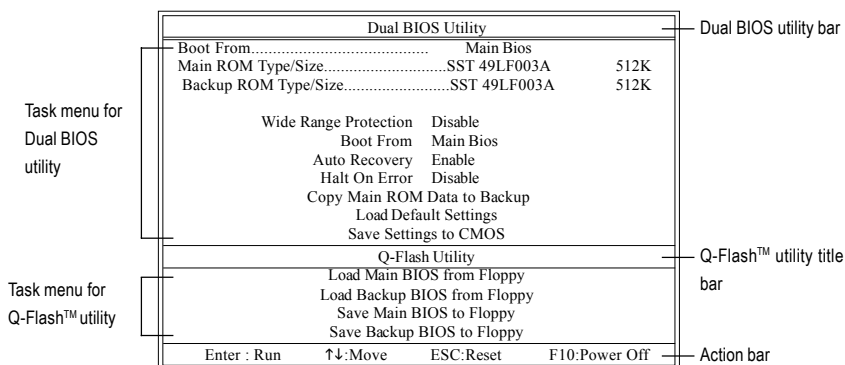
Step1: To use Q-Flash utility, you must press **Del** in the boot screen to enter BIOS menu.



Step 2: Press **F8** button on your keyboard and then **Y** button to enter the Dual BIOS/Q-Flash utility.

Exploring the Q-Flash™ / Dual BIOS utility screen

The Q-Flash / Dual BIOS utility screen consists of the following key components.



Task menu for Dual BIOS utility:

Contains the names of eight tasks and two item showing information about the BIOS ROM type. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Task menu for Q-Flash utility:

Contains the names of four tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Action bar:

Contains the names of four actions needed to operate the Q-Flash/Dual BIOS utility. Pressing the buttons mentioned on your keyboards to perform these actions.

3. Press Y button on your keyboard after you are sure to update BIOS.

Then it will begin to update BIOS. The progress of updating BIOS will be displayed.



Please do not take out the floppy disk when it begins flashing BIOS.

4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.

Dual BIOS Utility		
Boot From.....	Main Bios	
Main ROM Type/Size.....	SST 49LF003A	512K
Backup ROM Type/Size.....	SST 49LF003A	512K
Wide Range Protection Disable		
!! Copy BIOS completed - Pass !! Please press any key to continue		
Save Settings to CMOS		
Q-Flash Utility		
Load Main BIOS from Floppy		
Load Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
Enter : Run	↑↓:Move	ESC:Reset F10:Power Off





You can repeat Step 1 to 4 to flash the backup BIOS, too.

5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.

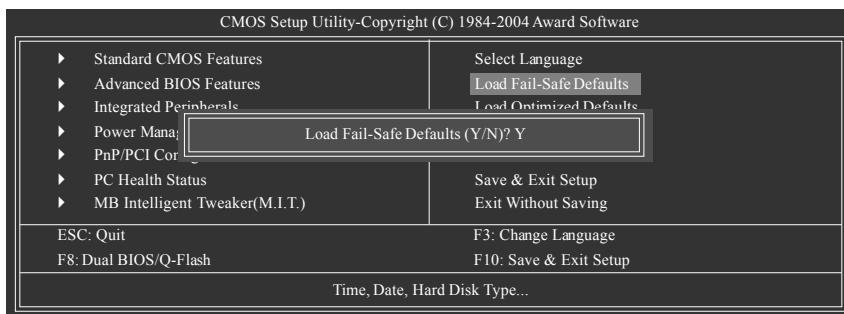
Dual BIOS Utility		
Boot From.....	Main Bios	
Main ROM Type/Size.....	SST 49LF003A	512K
Backup ROM Type/Size.....	SST 49LF003A	512K
Wide Range Protection Disable		
Are you sure to RESET ? [Enter] to continue or [Esc] to abort...		
Save Settings to CMOS		
Q-Flash Utility		
Load Main BIOS from Floppy		
Load Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
Enter : Run	↑↓:Move	ESC:Reset F10:Power Off

After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes Fab after updating.

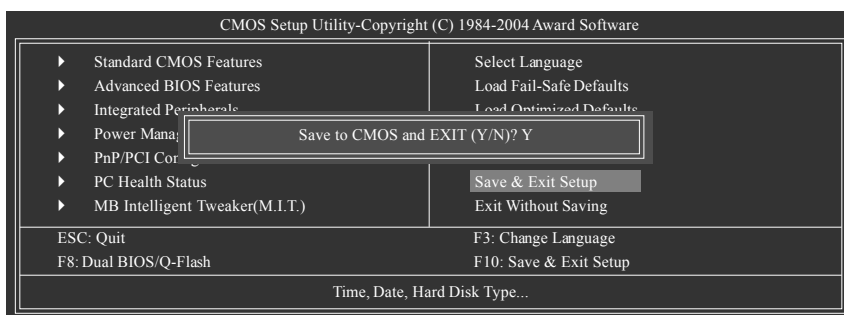
Award Modular BIOS v6.00PG, An Energy Star Ally Copyright (C) 1984-2003, Award Software, Inc.		 
Intel i875P AGPset BIOS for 8KXNP Ultra Fba Check System Health OK, VC=1.525V Main Processor : Intel Pentium(R) 4 1.6GHz (133x12) <CPUID> 0F27 Patch ID = 0027 Memory Testing : 131072K OK Memory Frequency 266 MHz in Single Channel Primary Master : FUJITSU MPE3170AT ED-03-08 Primary Slave : None Secondary Master : CREATIVEDVD-RM DVD1242E BC101 Secondary Slave : None Press DEL to enter SETUP / Dual BIOS / Q-Flash / F9 For Xpress Recovery 09/23/2003-i875P-6A79BG03C-00		

6. Press **Del** to enter BIOS menu after system reboots. When you are in BIOS menu, move to **Load Fail-Safe Defaults** item and press **Enter** to load BIOS Fail-Safe Defaults. Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded.



Press **Y** on your keyboard to load defaults.

7. Select **Save & Exit Setup** item to save the settings to CMOS and exit the BIOS menu. System will reboot after you exit the BIOS menu. The procedure is completed.

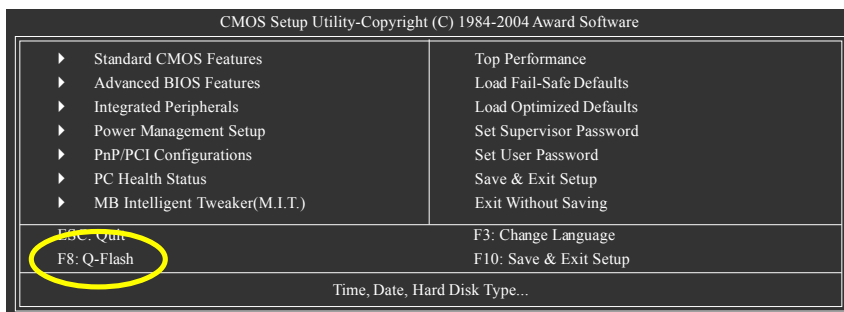


Press **Y** on your keyboard to save and exit.

Part Two:

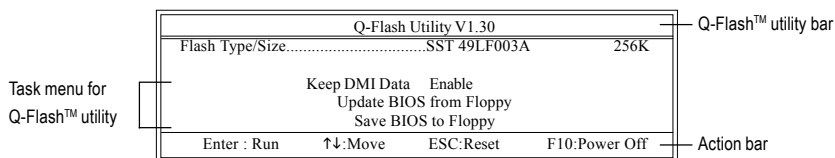
Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

This part guides users of single-BIOS motherboards how to update BIOS using the Q-Flash™ utility.



Exploring the Q-Flash™ utility screen

The Q-FlashBIOS utility screen consists of the following key components.



Task menu for Q-Flash utility:

Contains the names of three tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Action bar:

Contains the names of four actions needed to operate the Q-Flash utility. Pressing the buttons mentioned on your keyboards to perform these actions.

Using the Q-Flash™ utility:

This section tells you how to update BIOS using the Q-Flash utility. As described in the "Before you begin" section above, you must prepare a floppy disk having the BIOS file for your motherboard and insert it to your computer. If you have already put the floppy disk into your system and have entered the Q-Flash utility, please follow the steps below to flash BIOS.

Steps:

1. Press arrow buttons on your keyboard to move the light bar to "Update BIOS from Floppy" item in the Q-Flash menu and press Enter button.

Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.



NOTE

If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save BIOS to Floppy" item.

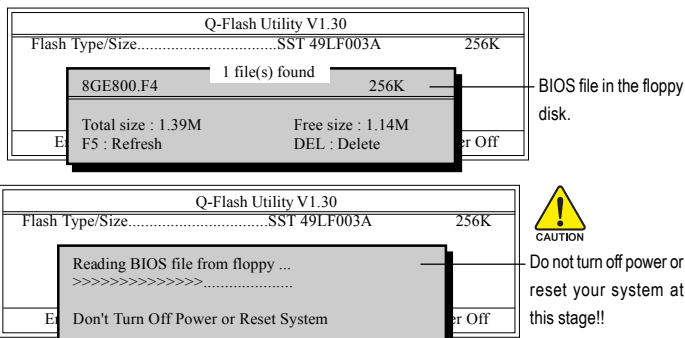
2. Move to the BIOS file you want to flash and press Enter.

In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8GE800.F4, is listed.



CAUTION

Please confirm again you have the correct BIOS file for your motherboard.



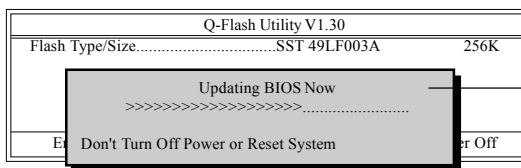
After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"



CAUTION

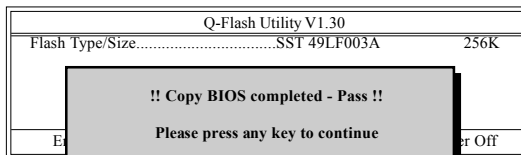
Please do not take out the floppy disk when it begins flashing BIOS.

3. Press Y button on your keyboard after you are sure to update BIOS.
Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.

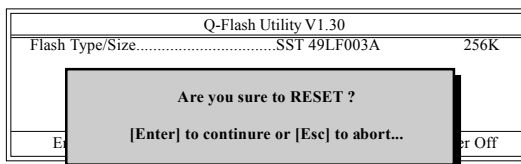


- Do not turn off power or reset your system at this stage!!

4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.

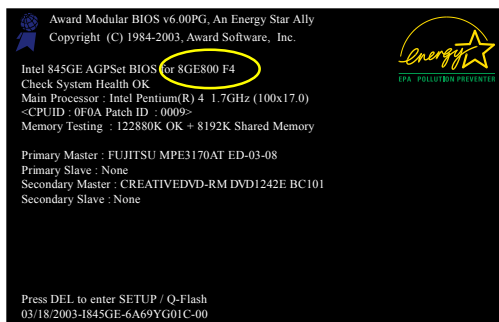


5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.



After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes F4 after updating



6. Press Del to enter BIOS menu after system reboots and "Load BIOS Fail-Safe Defaults". See how to Load BIOS Fail-Safe Defaults, please kindly refer to Step 6 to 7 in **Part One**.

Congratulation!! You have updated BIOS successfully!!



Method 2 : @BIOS™ Utility

If you do not have a DOS startup disk, we recommend that you use the new @BIOS utility. @BIOS allows users to update their BIOS under Windows. Just select the desired @BIOS server to download the latest version of BIOS.

Fig 1. Installing the @BIOS utility

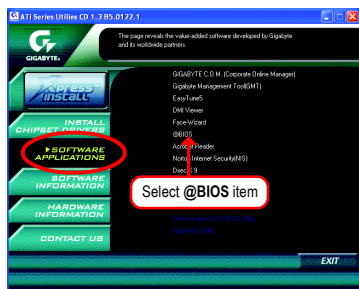


Fig 2. Installation Complete and Run @BIOS

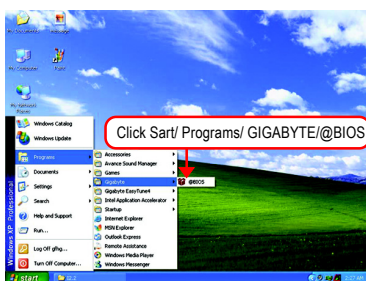


Fig 3. The @BIOS Utility

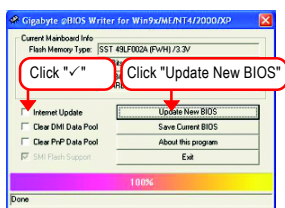
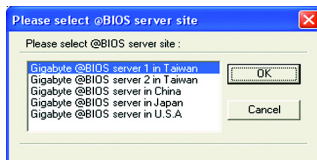


Fig 4. Select the desired @BIOS server



1. Methods and steps:

I. Update BIOS through Internet

- Click "Internet Update" icon
- Click "Update New BIOS" icon
- Select @BIOS™ sever
- Select the exact model name on your motherboard
- System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:

- Do not click "Internet Update" icon
- Click "Update New BIOS"
- Please select "All Files" in dialog box while opening the old file.
- Please search for BIOS unzip file, downloading from internet or any other methods (such as: K8A480M-9.D6).
- Complete update process following the instruction.

III. Save BIOS

In the very beginning, there is "Save Current BIOS" icon shown in dialog box. It means to save the current BIOS version.

IV. Check out supported motherboard and Flash ROM:

In the very beginning, there is "About this program" icon shown in dialog box. It can help you check out which kind of motherboard and which brand of Flash ROM are supported.

2. Note:

- I. In method I, if it shows two or more motherboard's model names to be selected, please make sure your motherboard's model name again. Selecting wrong model name will cause the system unbooted.
- II. In method II, be sure that motherboard's model name in BIOS unzip file are the same as your motherboard's. Otherwise, your system won't boot.
- III. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's web site for downloading and updating it according to method II.
- IV. Please note that any interruption during updating will cause system unbooted

4-1-4 Serial ATA BIOS Setting Utility Introduction

RAID Levels

RAID (Redundant Array of Independent Disks) is a method of combining two hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called members. The configuration information of each member is recorded in the reserved sector that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the ULI M1573 chipset supports are RAID 0, RAID 1, and JBOD.

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 64KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the spare drive can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

RAID 0+1 (Striping + Mirroring)

RAID 0+1 combines the performance of data striping (RAID 0) and the fault tolerance of disk mirroring (RAID 1). Data is striped across multiple drives and duplicated on another set of drives.

JBOD (Spanning)

A spanning disk array is equal to the sum of the all drives when the drives used are having different capacities. Spanning stores data onto a drive until it is full, then proceeds to store files onto the next drive in the array. When any disk member fails, the failure affects the entire array. JBOD is not really a RAID and does not support fault tolerance.

Please follow the steps below to construct a complete RAID array:

- 1) Have ready your hard drives for RAID construction.
Note: To achieve best performance, it is recommended that the hard drives used are of similar make and storage capacity.
- 2) Please attach the hard drive connectors to their appropriate location on the motherboard ie. IDE, SCSI, or SATA.
- 3) Enter the motherboard BIOS and locate RAID setup (Please refer to the section on Integrated Peripherals).
- 4) Enter RAID setup in the BIOS and select the RAID type (For instance, enter Ctrl + A to select ULI RAID; Ctrl + S to select Silicon Image).
- 5) Complete driver installation.
- 6) Complete RAID utility installation.

More information on steps 4 and 5 is provided. (For more detailed setup information, please visit "Support\ Motherboard\ Technology Guide section" on our website at <http://www.gigabyte.com.tw> to read or download the information you need.)

Configuring the ALi RAID BIOS

The ULI RAID BIOS setup utility lets you choose the RAID array type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup

1. After rebooting your computer, wait until you see the RAID software prompting you to press **Ctrl + A**. The RAID prompt appears as part of the system POST and boot process prior to loading the OS. You have a few seconds to press **Ctrl + A** before the window disappears.

```
ULi RAID BIOS V1.09 (M5287)
(c) ULi Electronics Inc. 2005, All Rights Reserved.
Identifying IDE drives .o.o.x.x

Channel 0 Master : ST3120026AS      SATA 1   120034 MB
Channel 1 Master : ST3120026AS      SATA 1   120034 MB
Channel 2 Master : None
Channel 3 Master : None

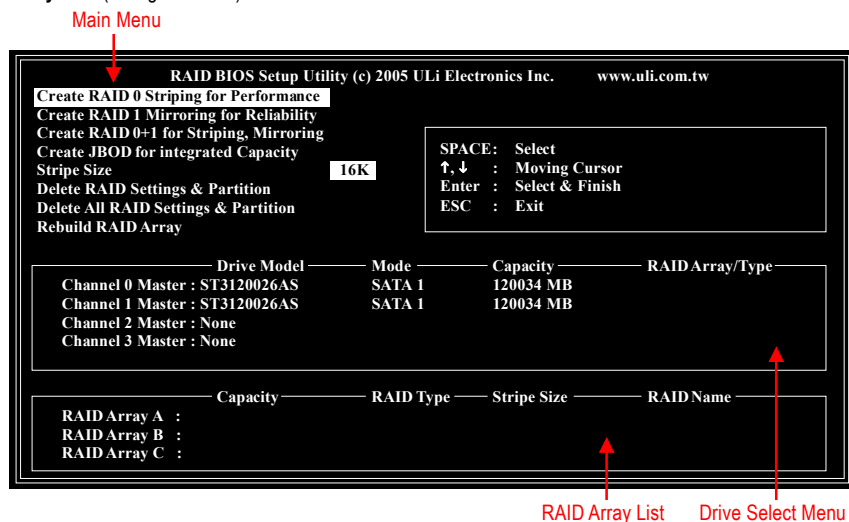
Press Ctrl-A to enter ULi RAID BIOS setup utility ...
```

Press **Ctrl + A**.

The ULi RAID BIOS Setup Utility window appears (as Figure below).

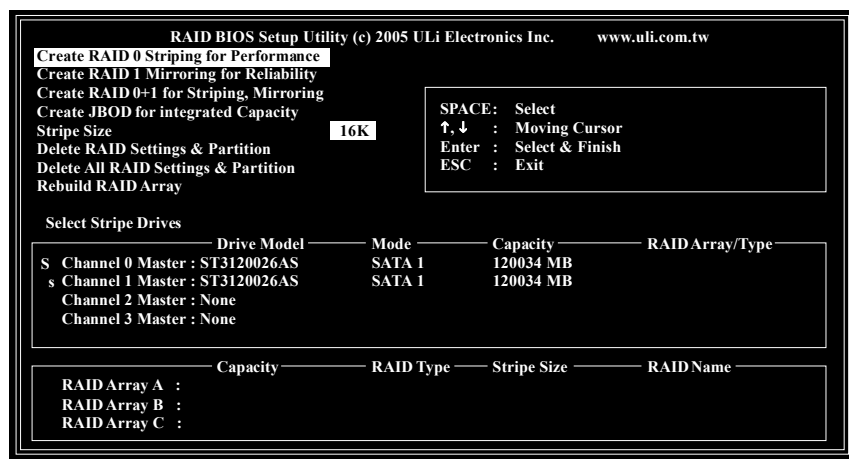
RAID BIOS Setup Utility (c) 2005 ULi Electronics Inc. www.uli.com.tw																							
Create RAID 0 Striping for Performance Create RAID 1 Mirroring for Reliability Create RAID 0+1 for Striping, Mirroring Create JBOD for integrated Capacity Stripe Size 16K																							
Delete RAID Settings & Partition Delete All RAID Settings & Partition Rebuild RAID Array		SPACE: Select ↑, ↓ : Moving Cursor Enter : Select & Finish ESC : Exit																					
<table border="1"> <thead> <tr> <th>Drive Model</th> <th>Mode</th> <th>Capacity</th> <th>RAID Array/Type</th> </tr> </thead> <tbody> <tr> <td>Channel 0 Master : ST3120026AS</td> <td>SATA 1</td> <td>120034 MB</td> <td></td> </tr> <tr> <td>Channel 1 Master : ST3120026AS</td> <td>SATA 1</td> <td>120034 MB</td> <td></td> </tr> <tr> <td>Channel 2 Master : None</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Channel 3 Master : None</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Drive Model	Mode	Capacity	RAID Array/Type	Channel 0 Master : ST3120026AS	SATA 1	120034 MB		Channel 1 Master : ST3120026AS	SATA 1	120034 MB		Channel 2 Master : None				Channel 3 Master : None						
Drive Model	Mode	Capacity	RAID Array/Type																				
Channel 0 Master : ST3120026AS	SATA 1	120034 MB																					
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Channel 3 Master : None																							
<table border="1"> <thead> <tr> <th>Capacity</th> <th>RAID Type</th> <th>Stripe Size</th> <th>RAID Name</th> </tr> </thead> <tbody> <tr> <td>RAID Array A :</td> <td></td> <td></td> <td></td> </tr> <tr> <td>RAID Array B :</td> <td></td> <td></td> <td></td> </tr> <tr> <td>RAID Array C :</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Capacity	RAID Type	Stripe Size	RAID Name	RAID Array A :				RAID Array B :				RAID Array C :							
Capacity	RAID Type	Stripe Size	RAID Name																				
RAID Array A :																							
RAID Array B :																							
RAID Array C :																							

There are three major areas in the RAID BIOS setup screen: **Main Menu**, **Drive Select Menu** and **RAID Array List**. (as Figure below)



1. Create RAID 0 Striping for Performance

Press **Enter** on **Create RAID 0 Striping for Performance** item. An "S" flash cursor appears at the Drive Select Menu for the user to choose the first drive for RAID 0. Use Space key to select the desired drive for RAID 0. Then the flash cursor changes to an "s" flash cursor for the user to choose the second drive for RAID 0. (as Figure below)



Press Space key to select the second drive. The prompt "**Data on RAID Drives will be deleted (Y/N)?**" appears after two drives are properly assigned. Press **Y**, and then some necessary information will be written to the drives, which will destroy the original data in the drives.



Make sure the data in drives is no longer in use before creating RAID 0.

Next, the Array Name input line appears for the user to key in a name for the newly created array. The effective characters for an array name is 0-9, A-Z, a-z, space and underscore.

RAID BIOS Setup Utility (c) 2005 ULi Electronics Inc. www.uli.com.tw

Create RAID 0 Striping for Performance
 Create RAID 1 Mirroring for Reliability
 Create RAID 0+1 for Striping, Mirroring
 Create JBOD for integrated Capacity
 Stripe Size 16K
 Delete RAID Settings & Partition
 Delete All RAID Settings & Partition
 Rebuild RAID Array

SPACE: Select
 ↑, ↓ : Moving Cursor
 Enter : Select & Finish
 ESC : Exit

Input RAID Name (8 characters) : ULi_RAID

	Drive Model	Mode	Capacity	RAID Array/Type
S	Channel 0 Master : ST3120026AS	SATA 1	120034 MB	
s	Channel 1 Master : ST3120026AS	SATA 1	120034 MB	
	Channel 2 Master : None			
	Channel 3 Master : None			

	Capacity	RAID Type	Stripe Size	RAID Name
RAID Array A :				
RAID Array B :				
RAID Array C :				

After the RAID array has been created successfully, its information shows up at RAID Array List.

RAID BIOS Setup Utility (c) 2005 ULi Electronics Inc. www.uli.com.tw

Create RAID 0 Striping for Performance
 Create RAID 1 Mirroring for Reliability
 Create RAID 0+1 for Striping, Mirroring
 Create JBOD for integrated Capacity
 Stripe Size 16K
 Delete RAID Settings & Partition
 Delete All RAID Settings & Partition
 Rebuild RAID Array

SPACE: Select
 ↑, ↓ : Moving Cursor
 Enter : Select & Finish
 ESC : Exit

	Drive Model	Mode	Capacity	RAID Array/Type
	Channel 0 Master : ST3120026AS	SATA 1	120034 MB	RAID A/0
	Channel 1 Master : ST3120026AS	SATA 1	120034 MB	RAID A/0
	Channel 2 Master : None			
	Channel 3 Master : None			

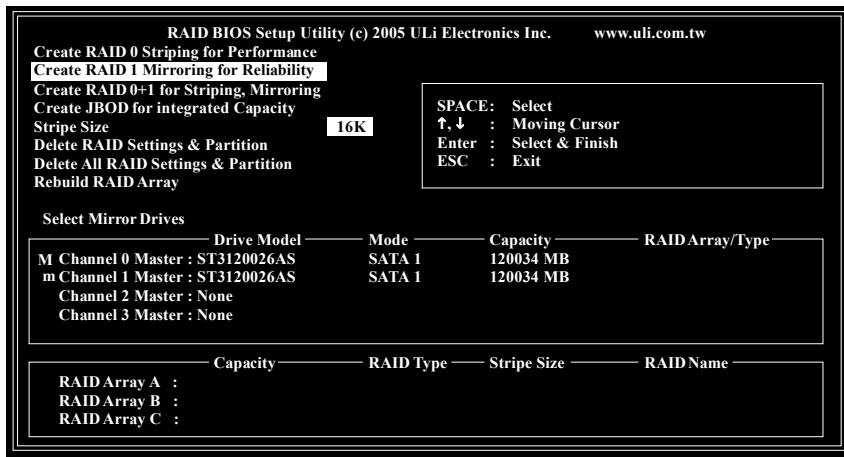
	Capacity	RAID Type	Stripe Size	RAID Name
RAID Array A :	240 GB	0	16K	ULi_RAID
RAID Array B :				
RAID Array C :				



Before create the RAID Array, you can select the Stripe Size first. The Stripe Size is effective for RAID 0. The user can choose a stripe size from 64KByte, 32KByte, 16KByte(default), 8KByte and 4KByte. If the user uses RAID 0 for most A/V editing application or files, 64KByte is recommended.

2. Create RAID 1 Mirroring for Reliability

Press **Enter** on **Create RAID 1 Mirroring for Reliability** item. An "M" flash cursor appears at the Drive Select Menu for the user to choose the first(source) drive for RAID 1. Use Space key to select the desired drive for RAID 1. Then the flash cursor changes to an "m" flash cursor for the user to choose the second (target) drive for RAID 1. (as Figure below)



Press Space key to select the second drive. The prompt "**Create RAID 1 (Y/N)?**" appears after two drives are properly assigned. Press **Y**, and then some necessary information will be written to the drives, which will destroy the original data in the drives.



It is recommended to use new drives to create RAID 1. If existing drive is to be used, backup all necessary data before creating RAID 1.

Next, the Array Name input line appears for the user to key in a name for the newly created array. The effective characters for an array name is 0-9, A-Z, a-z, space and underscore.

Lastly a prompt message "**Duplicate Data from M to m (Y/N)?**" asks whether to do drive copy. The source and target drives are indicated by "**M**" and "**m**" in Drive Select Menu respectively. Pressing **Y** will duplicate the data in source drive to the target drive. Make sure the source drive is the correct one. If you press **N**, then the data is inconsistent in two drives.

RAID BIOS Setup Utility (c) 2005 ULi Electronics Inc. www.uli.com.tw																							
Create RAID 0 Striping for Performance Create RAID 1 Mirroring for Reliability Create RAID 0+1 for Striping, Mirroring Create JBOD for integrated Capacity Stripe Size 16K Delete RAID Settings & Partition Delete All RAID Settings & Partition Rebuild RAID Array																							
SPACE: Select ↑, ↓ : Moving Cursor Enter : Select & Finish ESC : Exit																							
Duplicate Data from M to m (Y/N)?																							
<table border="1"> <thead> <tr> <th>Drive Model</th> <th>Mode</th> <th>Capacity</th> <th>RAID Array/Type</th> </tr> </thead> <tbody> <tr> <td>M Channel 0 Master : ST3120026AS</td> <td>SATA 1</td> <td>120034 MB</td> <td></td> </tr> <tr> <td>m Channel 1 Master : ST3120026AS</td> <td>SATA 1</td> <td>120034 MB</td> <td></td> </tr> <tr> <td>Channel 2 Master : None</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Channel 3 Master : None</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Drive Model	Mode	Capacity	RAID Array/Type	M Channel 0 Master : ST3120026AS	SATA 1	120034 MB		m Channel 1 Master : ST3120026AS	SATA 1	120034 MB		Channel 2 Master : None				Channel 3 Master : None			
Drive Model	Mode	Capacity	RAID Array/Type																				
M Channel 0 Master : ST3120026AS	SATA 1	120034 MB																					
m Channel 1 Master : ST3120026AS	SATA 1	120034 MB																					
Channel 2 Master : None																							
Channel 3 Master : None																							
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Capacity	RAID Type	Stripe Size	RAID Name																				
RAID Array A :																							
RAID Array B :																							
RAID Array C :																							

After the RAID array has been created successfully, its information shows up at RAID Array List.

RAID BIOS Setup Utility (c) 2005 ULi Electronics Inc. www.uli.com.tw																							
Create RAID 0 Striping for Performance Create RAID 1 Mirroring for Reliability Create RAID 0+1 for Striping, Mirroring Create JBOD for integrated Capacity Stripe Size 16K Delete RAID Settings & Partition Delete All RAID Settings & Partition Rebuild RAID Array																							
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Drive Model	Mode	Capacity	RAID Array/Type																				
Channel 0 Master : ST3120026AS	SATA 1	120034 MB	RAID A/1																				
Channel 1 Master : ST3120026AS	SATA 1	120034 MB	RAID A/1																				
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Channel 3 Master : None																							
<table border="1"> <thead> <tr> <th>Capacity</th> <th>RAID Type</th> <th>Stripe Size</th> <th>RAID Name</th> </tr> </thead> <tbody> <tr> <td>RAID Array A : 120034 MB</td> <td>0</td> <td></td> <td>ULi_RAID</td> </tr> <tr> <td>RAID Array B :</td> <td></td> <td></td> <td></td> </tr> <tr> <td>RAID Array C :</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Capacity	RAID Type	Stripe Size	RAID Name	RAID Array A : 120034 MB	0		ULi_RAID	RAID Array B :				RAID Array C :							
Capacity	RAID Type	Stripe Size	RAID Name																				
RAID Array A : 120034 MB	0		ULi_RAID																				
RAID Array B :																							
RAID Array C :																							

3. Create RAID 0+1 for Striping, Mirroring

Press **Enter** on **Create RAID 0+1 for Striping, Mirroring** item. The prompt "Data on first 4 drives will be deleted (Y/N)?" appears after four drives are properly assigned. Press **Y**, and then some necessary information will be written to the drives, which will destroy the original data in the drives.

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Create RAID 0 Striping for Performance
 Create RAID 1 Mirroring for Reliability
Create RAID 0+1 for Striping, Mirroring
 Create JBOD for integrated Capacity

Stripe Size **16K**

Delete RAID Settings & Partition
 Delete All RAID Settings & Partition
 Rebuild RAID Array

SPACE: Select
 ↑, ↓ : Moving Cursor
 Enter : Select & Finish
 ESC : Exit

Data on first 4 drives will be deleted (Y/N)?

Drive Model	Mode	Capacity	RAID Array/Type
Channel 0 Master : ST3120026AS	SATA 1	120034 MB	
Channel 1 Master : ST3120026AS	SATA 1	120034 MB	
Channel 2 Master : HDS722512VLSA80	SATA 1	123522 MB	
Channel 3 Master : HDS722512VLSA80	SATA 1	123522 MB	

Capacity RAID Type Stripe Size RAID Name

RAID Array A :
 RAID Array B :
 RAID Array C :



You must use four hard drives to create RAID 0+1 and it is recommended to use new drives. If existing drive is to be used, backup all necessary data before creating RAID 0+1.

Next, the Array Name input line appears for the user to key in a name for the newly created array. The effective characters for an array name is 0-9, A-Z, a-z, space and underscore.

RAID BIOS Setup Utility (c) 2005 ULI Electronics Inc. www.uli.com.tw

Create RAID 0 Striping for Performance
 Create RAID 1 Mirroring for Reliability
Create RAID 0+1 for Striping, Mirroring
 Create JBOD for integrated Capacity

Stripe Size **16K**

Delete RAID Settings & Partition
 Delete All RAID Settings & Partition
 Rebuild RAID Array

SPACE: Select
 ↑, ↓ : Moving Cursor
 Enter : Select & Finish
 ESC : Exit

Input RAID Name (8 characters) : ULi_RAID

Drive Model	Mode	Capacity	RAID Array/Type
Channel 0 Master : ST3120026AS	SATA 1	120034 MB	
Channel 1 Master : ST3120026AS	SATA 1	120034 MB	
Channel 2 Master : HDS722512VLSA80	SATA 1	123522 MB	
Channel 3 Master : HDS722512VLSA80	SATA 1	123522 MB	

Capacity RAID Type Stripe Size RAID Name

RAID Array A :
 RAID Array B :
 RAID Array C :

After the RAID array has been created successfully, its information shows up at RAID Array List.

RAID BIOS Setup Utility (c) 2005 ULI Electronics Inc. www.uli.com.tw	
Create RAID 0 Striping for Performance	
Create RAID 1 Mirroring for Reliability	
Create RAID 0+1 for Striping, Mirroring	
Create JBOD for integrated Capacity	
Stripe Size	16K
Delete RAID Settings & Partition	
Delete All RAID Settings & Partition	
Rebuild RAID Array	

Drive Model	Mode	Capacity	RAID Array/Type
Channel 0 Master : ST3120026AS	SATA 1	120034 MB	RAID A/0+1
Channel 1 Master : ST3120026AS	SATA 1	120034 MB	RAID A/0+1
Channel 2 Master : HDS722512VLSA80	SATA 1	123522 MB	RAID A/0+1
Channel 3 Master : HDS722512VLSA80	SATA 1	123522 MB	RAID A/0+1

Capacity	RAID Type	Stripe Size	RAID Name
RAID Array A : 240 GB	0+1	16K	ULI_RAID
RAID Array B :			
RAID Array C :			

4. Create JBOD for integrated Capacity

Press **Enter** on **Create JBOD for integrated Capacity** item. A "J" flash cursor appears at the Drive Select Menu for the user to choose the first drive for JBOD. Use Space key to select the desired drive for JBOD. Press **Enter** to finish JBOD drive selection. The maximum number of drives for JBOD array is four and the minimum is two.

RAID BIOS Setup Utility (c) 2005 ULI Electronics Inc. www.uli.com.tw	
Create RAID 0 Striping for Performance	
Create RAID 1 Mirroring for Reliability	
Create RAID 0+1 for Striping, Mirroring	
Create JBOD for integrated Capacity	
Stripe Size	16K
Delete RAID Settings & Partition	
Delete All RAID Settings & Partition	
Rebuild RAID Array	

Drive Model	Mode	Capacity	RAID Array/Type
J Channel 0 Master : ST3120026AS	SATA 1	120034 MB	
J Channel 1 Master : ST3120026AS	SATA 1	120034 MB	
Channel 2 Master : None			
Channel 3 Master : None			

Capacity	RAID Type	Stripe Size	RAID Name
RAID Array A :			
RAID Array B :			
RAID Array C :			

The prompt "**Data on RAID Drives will be deleted (Y/N)?**" appears after two drives are properly assigned. Press **Y**, and then some necessary information will be written to the drives, which will destroy the original data in the drives. Next, the Array Name input line appears for the user to key in a name for the newly created array. The effective characters for an array name is 0-9, A-Z, a-z, space and underscore. After the RAID array has been created successfully, its information shows up at RAID Array List.



Make sure the data in drives is no longer in use before creating JBOD.

5. Delete RAID Settings & Partition

When RAID BIOS detects a broken RAID, the user can use **Delete RAID Setting & Partition** to delete the broken RAID.

Press **Enter** on **Delete RAID Settings & Partition** item. An "**E**" flash cursor appears at the Drive Select Menu for the user to choose the defined drive to be deleted. "**Data on RAID drives will be deleted (Y/N)?**" message will appear to confirm the user's selection. Press **Y** and then the data in drives is destroyed. RAID Array List automatically updates itself.

6. Delete All RAID Settings & Partition

Press **Enter** on **Delete All RAID Settings & Partition** item. "**Data on RAID drives will be deleted (Y/N)?**" message will appear to confirm the user's selection. Press **Y** and then the data in drives is destroyed. RAID Array List automatically updates itself.

7. Rebuild RAID Array

When a drive is replaced or BIOS detects a broken RAID, the user can use Rebuild RAID Array to keep data coherency for RAID 1.

Press **Enter** on **Rebuild RAID Array** item. An "**R**" flash cursor appears at the Drive Select Menu for the user to choose the valid drive of previously defined RAID 1 to rebuild. BIOS shows the source (marked with "**M**") and target (marked with "**m**") drives.

Lastly a prompt message "**Duplicate Data from M to m (Y/N)?**" asks whether to do drive copy. The source and target drives are indicated by "**M**" and "**m**" in Drive Select Menu respectively. Press **Y** to start the rebuild process and data duplication. The process status bar shows up during the duplication process.

After configuration of RAID Array, press **ESC** to exit ULi RAID BIOS setup utility.

Installing the RAID drivers

To install Windows 2000/XP onto a Serial ATA hard disk successfully, you need to install required driver for the SATA controller on your motherboard during OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process.

First of all, you have to copy the driver for the SATA controller on your motherboard from the motherboard driver CD to a floppy disk. See the instructions below about how to copy the driver.

Step 1: Find an available Operation System and insert the motherboard driver CD into the CD-ROM drive. The installation utility will appear automatically soon after you insert the driver CD. Quit the installation utility first. Insert a blank formatted floppy disk into the floppy disk drive.

Step 2: Go to My Computer and right-click the CD-ROM icon (This procedure assumes Drive D) and select Open. Then you will see folders and files contained in the driver CD. Double-click the BootDrv folder icon and select **MENU.exe** (refer to Fig.1).

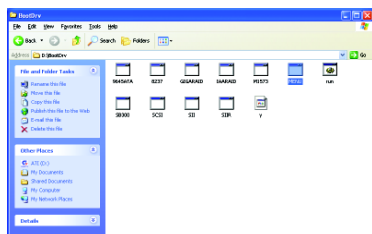


Fig.1

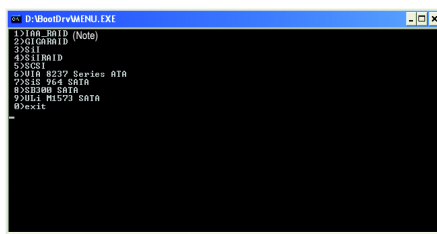


Fig.2

Step 3:

A MS-DOS prompt screen will appear. Information on all chipsets should be listed on the screen (Refer to Fig.2), please select the proper chipset model.

Your system will then automatically zip and transfer this driver file to the floppy disk.

After you complete the steps, boot from the Windows CD to install the RAID drivers.

When install Windows 2000 or Windows XP from HDDs in serial ATA controller, press **F6** as Win2000 or XP boots up, then supply serial ATA controller driver by this floppy disk. Follow on-screen instructions to complete installation.

(Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.)

(Note) In the menu list, IAA_RAID is Intel ICH5R chipset.



4-1-5 2-/4-/6-/8- Channel Audio Function Introduction

This motherboard provide 6 audio connector. You are able to use 2-/4-/6-/8-channels audio feature by audio software selection.

Introduction of audio connectors:

You may connect CD-ROM/DVD-ROM, walkman or others audio input to Line In.

The front channels or earphone can be connected to Line Out (Front Speaker Out).

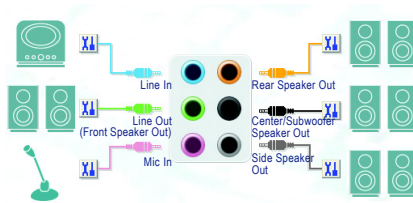
Connect microphone to Mic In.

Connect the rear channels to Rear Speaker Out.

Connect the Center/Subwoofer channels to Center/Subwoofer Speaker Out.

Connect the side channels to Side Speaker Out.

Please follow the steps to install the function.(Following pictures are in Windows XP)

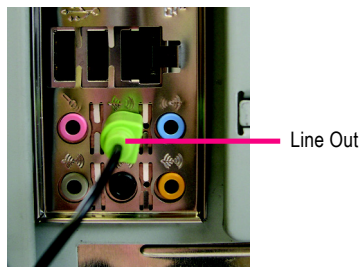


Stereo Speakers Connection and Settings:

We recommend that you use the speaker with amplifier to acquire the best sound effect if the stereo output is applied.


STEP 1:

Connect the stereo speakers or earphone to "Line Out".

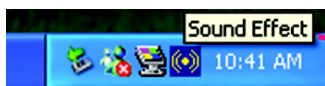


STEP 2 :

Following installation of the audio driver, you find a

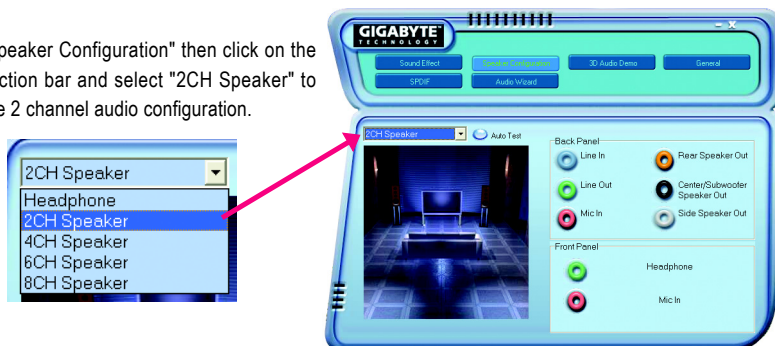
Sound Effect  icon on the lower right hand taskbar.

Click the icon to select the function.

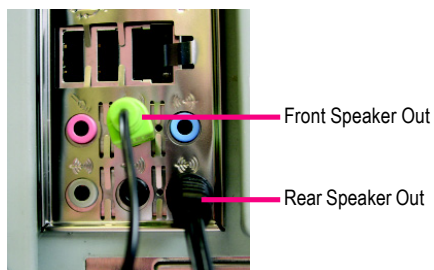


STEP 3:

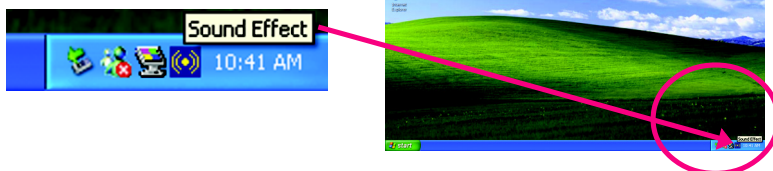
Click "Speaker Configuration" then click on the left selection bar and select "2CH Speaker" to complete 2 channel audio configuration.

**4 Channel Audio Setup****STEP 1 :**

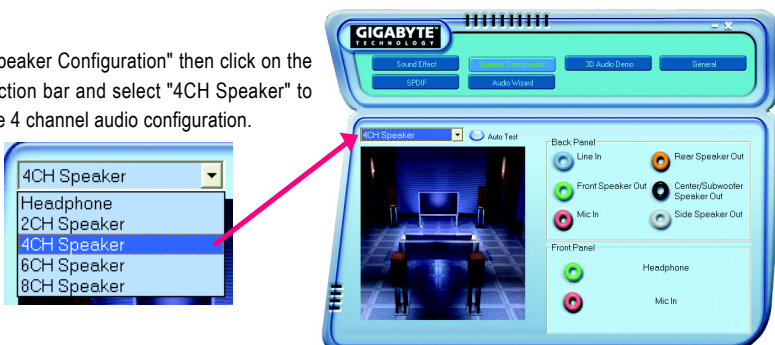
Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out".

**STEP 2 :**

Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.

**STEP 3:**

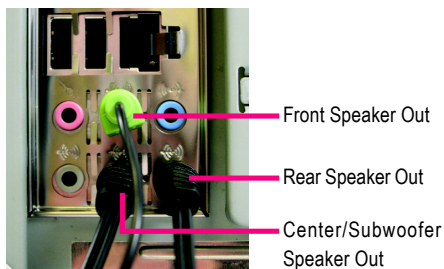
Click "Speaker Configuration" then click on the left selection bar and select "4CH Speaker" to complete 4 channel audio configuration.



6 Channel Audio Setup

STEP 1 :

Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out", and the Center/Subwoofer channels to "Center/Subwoofer Speaker Out".



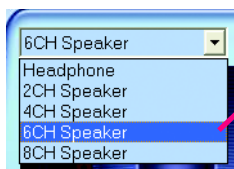
STEP 2 :

Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.



STEP 3:

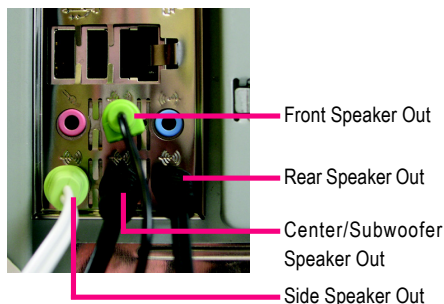
Click "Speaker Configuration" then click on the left selection bar and select "6CH Speaker" to complete 6 channel audio configuration.




8 Channel Audio Setup

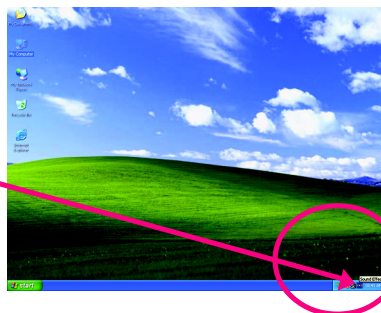
STEP 1 :

Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out", the Center/Subwoofer channels to "Center/Subwoofer Speaker Out", and the side channels to "Side Speaker Out".



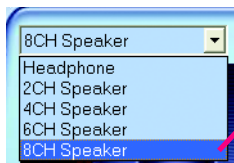
STEP 2 :

Following installation of the audio driver, you find a Sound Effect  icon on the lower right hand taskbar. Click the icon to select the function.



STEP 3:

Click "Speaker Configuration" then click on the left selection bar and select "6CH Speaker" to complete 6 channel audio configuration.



Sound Effect Configuration:

At the sound effect menu, users can adjust sound option settings as desired.



4-2 Troubleshooting

Below is a collection of general asked questions. To check general asked questions based on a specific motherboard model, please log on to <http://www.gigabyte.com.tw>

Question 1: I cannot see some options that were included in previous BIOS after updating BIOS. Why?

Answer: Some advanced options are hidden in new BIOS version. Please press Ctrl and F1 keys after entering BIOS menu and you will be able to see these options.

Questions 2: Why is the light of my keyboard/optical mouse still on after computer shuts down?

Answer: In some boards, a small amount of electricity is kept on standby after computer shuts down and that's why the light is still on.

Question 3: How do I clear CMOS?

Answer: If your board has a Clear CMOS jumper, please refer to the Clear CMOS steps in the manual. If your board doesn't have such jumper, you can take off the on-board battery to leak voltage to clear CMOS. Please refer to the steps below:

Steps:

1. Turn off power.
2. Disconnect the power cord from MB.
3. Take out the battery gently and put it aside for about 10 minutes (Or you can use a metal object to connect the positive and negative pins in the battery holder to makethem short for one minute).
4. Re-insert the battery to the battery holder.
5. Connect power cord to MB again and turn on power.
6. Press Del to enter BIOS and load Fail-Safe Defaults(or load Optimized Defaults).
7. Save changes and reboot the system.

Question 4: Why do I still get a weak sound after turning up the speaker to the maximum volume?

Answer: Please make sure the speaker you are using is equipped with an internal amplifier. If not, please change another speaker with power/amplifier and try again later.

Question 5: Sometimes I hear different continuous beeps from computer after system boots up. What do these beeps usually stand for?

Answer: The beep codes below may help you identify the possible computer problems. However, they are only for reference purposes. The situations might differ from case to case.

→ AMI BIOS Beep Codes

*Computer gives 1 short beep when system boots successfully.

*Except for beep code 8, these codes are always fatal.

- 1 beep Refresh failure
- 2 beeps Parity error
- 3 beeps Base 64K memory failure
- 4 beeps Timer not operational
- 5 beeps Processor error
- 6 beeps 8042 - gate A20 failure
- 7 beeps Processor exception interrupt error
- 8 beeps Display memory read/write failure
- 9 beeps ROM checksum error
- 10 beeps CMOS shutdown register read/write error
- 11 beeps Cache memory bad

→ AWARD BIOS Beep Codes

- 1 short: System boots successfully
- 2 short: CMOS setting error
- 1 long 1 short: DRAM or M/B error
- 1 long 2 short: Monitor or display card error
- 1 long 3 short: Keyboard error
- 1 long 9 short: BIOS ROM error
- Continuous long beeps: DRAM error
- Continuous short beeps: Power error

[illegible]

[illegible]



Contact Us

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<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address (English): <http://www.gigabyte.com.tw>

WEB address (Chinese): <http://chinese.giga-byte.com>

• U.S.A.

G.B.T. INC.

TEL: +1-626-854-9338

FAX: +1-626-854-9339

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.giga-byte.com>

• Germany

G.B.T. TECHNOLOGY TRADING GMBH

TEL: +49-40-2533040 (Sales)

+49-1803-428468 (Tech.)

FAX: +49-40-25492343 (Sales)

+49-1803-428329 (Tech.)

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.de>

• Japan

NIPPON GIGA-BYTE CORPORATION

WEB address : <http://www.gigabyte.co.jp>

• Singapore

GIGA-BYTE SINGAPORE PTE. LTD.

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address: <http://www.gigabyte.com.sg>

• U.K.

G.B.T. TECH. CO., LTD.

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://uk.giga-byte.com>

• The Netherlands

GIGA-BYTE TECHNOLOGY B.V.

TEL: +31-40-290-2088

NL Tech.Support: 0900-GIGABYTE (0900-44422983)

BE Tech.Support: 0900-84034

FAX: +31-40-290-2089

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.giga-byte.nl>

• China

NINGBO G.B.T. TECH. TRADING CO., LTD.

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.com.cn>

Shanghai

TEL: +86-021-63410999

FAX: +86-021-63410100

Beijing

TEL: +86-10-62102838

FAX: +86-10-62102848

Wuhan

TEL: +86-27-87851061

FAX: +86-27-87851330

GuangZhou

TEL: +86-20-87586074

FAX: +86-20-85517843

Chengdu

TEL: +86-28-85236930

FAX: +86-28-85256822

Xian

TEL: +86-29-85531943

FAX: +86-29-85539821

Shenyang

TEL: +86-24-23960918

FAX: +86-24-23960918-809

• Australia

GIGABYTE TECHNOLOGY PTY. LTD.

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.giga-byte.com.au>

• France

GIGABYTE TECHNOLOGY FRANCE S.A.R.L.

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.fr>

• Russia

Moscow Representative Office Of GIGA-BYTE Technology Co., Ltd.

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.ru>

• Poland

Office of GIGA-BYTE TECHNOLOGY Co., Ltd. in POLAND

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.pl>

• Serbia & Montenegro

Representative Office Of GIGA-BYTE Technology Co., Ltd. in SERBIA & MONTENEGRO

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.co.yu>

• Czech Republic

Representative Office Of GIGA-BYTE Technology Co., Ltd. in CZECH REPUBLIC

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.cz>

• Romania

Representative Office Of GIGA-BYTE Technology Co., Ltd. in Romania

Tech. Support :

<http://tw.giga-byte.com/TechSupport/ServiceCenter.htm>

Non-Tech. Support(Sales/Marketing) :

<http://ggts.gigabyte.com.tw/nontech.asp>

WEB address : <http://www.gigabyte.com.ro>